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THIS PUBLICATION PRESENTS SELECTED PAPERS FROM THE UNITED CEREBRAL PALSY ASSOCIATION'S 15TH ANNUAL CONFERENCE, MARCH 13, 1965. PAPERS ARE--(1) "S IS TO TURN" BY PAUL V. CARLSON, (2) "CERTAIN ASPECTS OF THE FUNCTIONAL STATUS OF THE FETUS IN UTERO" BY FORREST H. ADAMS, (3) "ENCEPHALITIS--COMMON CAUSES AND AFTER EFFECTS" BY JOHN M. ADAMS, (4) "BRAIN RESEARCH AT THE BARROW NEUROLOGICAL INSTITUTE, A NON-UNIVERSITY CENTER" BY EDUARDO EIDELBERG, (5) "EDUCATION FOR SELF-SUFFICIENCY" (ABSTRACT) BY EDGAR A. DOLL, (6) "AN APPROACH TO THE ASSESSMENT OF LANGUAGE DISORDERS IN BRAIN DAMAGE" BY OTFRIED SPREEN, (7) "THE TEACHER'S CONTRIBUTION IN THE DIAGNOSIS AND REMEDIATION OF LEARNING DISABILITIES" BY DOUGLAS E. WISEMAN, (8) "DEVELOPMENT OF CREATIVE DESIGNS BY HANDICAPPED CLIENTS IN COMPETITIVE RETAILING" BY SYLVIA P. HOWARD, (9) "FUTURE DIRECTION FOR RESEARCH IN VOCATIONAL REHABILITATION" BY CHARLES S. NICHOLAS, AND (10) "IMPLICATIONS OF DEVELOPING STATE DIVISION OF VOCATIONAL REHABILITATION SERVICES FOR CEREBRAL PALSIED CLIENTS" BY DONALD W. BLYTH. COMMENTS AND DISCUSSION ARE PROVIDED BY SIDNEY CARTER, BLUMA WEINER, SAMUEL ASHCROFT, MARTIN E. MC CAVITT, ISADOR W. SCHERER, CRAIG MILLS, AND DON BURTON. (MY)

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SELECTED PAPERS

FROM

PROFESSIONAL PROGRAM SEGMENTS

OF

UNITED CEREBRAL PALSY'S ANNUAL CONFERENCE

LOS ANGELES, CALIFORNIA

MARCH 11 – 13, 1965

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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ADDRESS BY

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S IS TO TURN

Presented at

UNITED CEREBRAL PALSY ASSOCIATIONS'
15TH ANNUAL CONFERENCE
March 13, 1965 Los Angeles, California

I have been asked to speak about some of the new approaches of retraining perceptual-motor skills and the implications that these techniques might have for work with the cerebral palsied.

What are the perceptual-motor skills? How do they develop? Can they be changed? How important are they?

Our first behavioral responses are sensory-motor movements. These movements represent the beginning of a long lifetime of motor responses. Through this first movement exploration, a child begins to find out about himself and about his surroundings. He experiments with motor problems to the point where he begins to develop a concept of what the world is like outside of himself. Many kinds of motor patterns develop. All of these patterns together form part of the normal maturational process of the child. The development of posture, the awareness of right versus left, and the awareness of directions in space are examples of crucial sensory-motor skills. These skills are developed from general movement patterns, not merely specific kinds of muscular responses moved by specific single impulses. These group responses are learned through interaction with the surrounding world.

More specifically, what does laterality, the awareness of right versus left, have to do with the child's development? In the first place, we know that there are no objective directions in space. We create directions. We create right, left, up and down. We create all of these things by projecting from ourselves out into space. This must be learned. Balance is extremely important in developing these directions, because it is in the balancing task that the two sides of the body come into interplay with each other. We have to detect how one side of the body is different from but yet works with the other side of the body. And we have to learn compensatory movements when one part of the body is leaning or falling to one side. This is how we begin to form the basis of learning right from left. There are many other related movement patterns, and the child that does not develop these laterality patterns appropriately does not gain an adequate appreciation of his right and left. This begins to restrict his learning process and so when he is confronted with right-left decisions he has difficulty and becomes confused.

When laterality development is progressing normally, the child begins to project this awareness from within himself outside to his external surroundings. Thus, he develops directions in space, such as "toward", "away", "closer", etc. This directionality is developed until he begins to make use of the information that is coming into him about his surrounding world. For example, the child who drops his toys or eating utensils on the floor is beginning to learn about depth, getting information about "down" and "up".

To summarize, the first years of childhood include much movement behavior that forms the foundation for later learning. It is through sensory-motor activity and observations of this activity that the child begins to match what he does with what results from his actions.

If motor development includes the learning of movement coordination, where does "perception" come into the picture? How is perception related to motor development? Perception is highly dependent upon motor development. Perception has to do with how we organize what comes into us from the various senses, while motor development is concerned with how we react to perceptual patterns.

By combining what we learn through touch, vision, hearing, muscular movement, and the various other senses, the child develops a knowledge of where he is in space. We've all seen the young toddler, for example, manage getting into a chair by facing the chair, stepping onto the chair, and then rotating himself until he is seated. He cannot, at first, back up to a chair, and sit down. This is because the "rear" is one of the last areas we conceptualize in terms of body image. It's an area we don't see. And, it's the area the infant hardly knows is there until he has had many experiences of sitting down and getting up. He eventually learns to sit without looking by using a combination of many sensory clues.

As the child develops, he learns about many things around him from perceptual-motor experiences. He learns to recognize the attributes of objects. Certain objects are chairs, while some are tables. Some objects are round, and some are square. A house is bigger than himself. A knife is very small. A penny is even smaller. These kinds of judgments are continually being learned. But, if difficulties start in the perceptual-motor process, it is to be expected that these judgments will begin to become defective. Or, some kind of compensation or new way of handling these judgments must be developed. And, sometimes, these new ways are not generalizable enough to help future learning in later years.

One important area of perceptual development is called "position in space", which is closely related to laterality. Developing "position in space" tells us where we stand in relation to things about us. Whether we are above them, below them, around them, or beside them. If we have difficulties in developing these capacities, we have difficulties in understanding what is meant by words which designate spatial position. Letters, words and numbers sometimes appear distorted or confusing. The standard example is the confusion between "b" and "d" which are the same except for their directions. Such words as "saw" and "was" are difficult to read because they are identical except for their position in space.

Visual-motor coordination, the control of the eyes in following where the body is moving, whether it's eye-hand coordination, or eye-foot coordination, is an extremely important aspect of perceptual-motor development. We reach for things to learn about them. We run; we jump; we step over things. Our eyes direct all of these movements. Whether it's moving next to a table to sit down for a meal, taking off our clothes, or taking a bath, our eyes serve as directors of where we move.

We see most clearly those things to which we pay the most attention. The things we look at to form a "figure". The things that become recessed into the background form the "ground". Figure-ground relationships must be learned. When a ball comes toward you, you'd better watch that ball and not it's background, or you're in trouble. Or, what happens when you're listening to the radio and static increases until you can't quite hear what the announcer is saying? As this noise increases, it gets more and more difficult to pay attention to what you're most interested in. This is an auditory figure-ground problem, where the differentiation between the figure and the ground are reduced. Certain children appear to have difficulties here. The child who comes up when introduced and yanks at your tie, rather than saying "hello" or shaking your outstretched hand, might have a figure-ground relationship. He might not "see" the most important aspect of the situation, such as your face or your hand, but is distracted by some extraneous thing such as your tie or your belt. The children who have these difficulties usually appear inattentive, disorganized, and often are hyperactive.

Perceptual constancy is also very important. That refers to the fact that objects are perceived as possessing certain kinds of properties, such as shape, position, size, or brightness. These properties remain constant, so that a box seen from various directions is still a box, although the visual image on the retina is not always the same. The person walking away into the distance really is not shrinking, but is still the same size, although he looks smaller the further he walks from us. Size constancy is the ability to perceive and recognize an object's size regardless of the factors around it which might appear to change its size. Brightness constancy involves the ability to judge brightness or whiteness of an object, regardless of how much light is placed on it. It is the knowledge that an object remains the same color whether it's in the dark or in the daylight.

Another area of importance is the development of spatial relationships. This occurs when there are two or more objects that must be seen in relationship to each other. Any number of different parts might be seen in relationship to each other, and all of them receive somewhat equal attention. Disabilities lead to incorrect letter sequencing when reading. The child might perceive the word "plot" as "pilot" or "polt" for example. Arithmetic problems may occur in remembering the sequence of the digits in long division or in the perceiving of the relative position of the digits in multiplication. The usage of graphs, maps, and learning measurement systems are all dependent upon relationships between objects.

When we have a child with any one or a combination of many problems in the development of perceptual-motor skills, what can we do? That is the question. And which children, and how many, have these problems? That's another question. I can't answer these questions. There has been a large amount of clinical work dealing with these problems but research is needed to find an answer.

Perhaps some specific examples will help to clarify some of these concepts. Let us turn to a 10 year old girl named Sandy and focus on one very small aspect of an entire remediation program for this particular child.

Sandy came as a severely brain damaged, eight-year-old, child that pediatric, neurological, and educational settings had recommended be placed in an institution for the mentally retarded. Traditional educational approaches had failed. It was medically predicted that Sandy would never read, write, or be able to adequately control her movements.

This is Sandy's response to asking her to draw anything when she was age eight. (Figure 1) She would draw a series of perseverative circles for her name, for objects, or whatever she was asked to copy. One of the first things she worked with in retraining was the kind of motor experimentation that we all know as "scribbling" to try to alter the repetitive circular pattern which she used. And what we tried to do was to break this pattern down and to develop more flexibility in her movements. And what can be more flexible than scribbling?

At the same time that we were working on the specific kinds of tasks I will mention, gross motor tasks were developed. For example, the exercises for laterality and directionality that she tried included a wide variety of movements in various conditions of jumping, hopping, skipping, moving toward still objects, moving toward moving objects and dodging them, and many kinds of body balancing tasks. Tasks of this nature were developed as an attempt to break up the rigid movement patterns that her experiences had developed.

After a certain amount of flexibility training, Sandy reached the point where she was able to place a pencil at a designated place on the paper, something that had been previously impossible for her to do. Figure 2 shows one of hundreds of exercises aimed at developing eye-hand coordination so that Sandy could better control her drawing movements. The task in figure 2 is to draw a string on the balloon. Starting and inhibiting movement were difficult for her, and this task involved only the starting.

Some weeks later, when Sandy had mastered this task, she was forced to move from a particular place in space to another point in space, so that in Figure 3 she had to draw the string from the kite to the place where the string is rolled up, thus learning the inhibitory and directional movements as well. And as Sandy worked on these drawing activities, gross body activities continued to be stressed. She was placed into a room which was filled with materials such as chairs, desks and other kinds of physical materials and she was asked to visualize what wasn't there, the space that wasn't occupied, and asked to move between objects, under these objects, and around these objects. Or, she might have a scarf placed on her and be asked to feel the scarf as it moved about her as it gave her some kind of impression of where she was and where the scarf was.

The drawing types of perceptual activities were also duplicated in various media, such as clay, sand, with small stones, with fingerpaints, with mud, thus employing a wide variety of sensory modalities with a wide variety of movements.

Another game, the clock game, in which she places her hands in the center of a large clock and has to move them outward in varying combinations, was used to further develop her directionality concept and her abilities to start and to stop. She had to pick up weights and carry them in one hand while she was going through various body maneuvers with the rest of her body. She had to push or pull against things to developing pushing and pulling skills.

The main emphasis throughout training was on the overall patterning first, followed by specific kinds of tasks, such as the examples you see in these figures.

Figure 4 shows another progressive drawing task which involves the control of movement from one point to another by trying to stay between the two lines. The lines get narrower to make the task more difficult.

With increased perceptual-motor awareness and control came a slow development of concept formation. For many months, what Sandy drew on a piece of paper had very little relationship to what we know reality to be like. More attempts were made to get her to experience various objects and materials in different contexts. Figure 5 shows a drawing produced after about a year of work, in which, for the first time, her drawing actually appeared to cognitively represent some kind of concrete object. As you can see, some lines represent the office, one line is me, one line is her, and the somewhat angular line up in the center is a desk. This is fairly primitive, undifferentiated form response, but it was her first attempt to reproduce objects on paper.

Work on figure-ground relationships and form constancy was performed to a large degree by talking about things about her, trying things, looking at variously shaped objects, and seeing how they varied in their size to her. She was asked to sort out, and separate, for example, the knives, forks, and spoons, in drawers and to place them in their proper place. She tried putting on her clothes in various ways, although she could not button. Various kinds of sorting games were used. Some paper and pencil tasks were used with intersecting lines, hidden figures, and overlapping figures, involving any kind of task which might get at developing the importance of certain objects in opposition to their background.

Finally, one day after much work in drawing activities, she looked at me and said, "That's my name, 'S!" But "S" was a sign-like curve, as you can see. She did have the idea. She came upon this herself. She said, "I know how you draw 'S' 'S' is to turn. When I turn, I make an 'S'." This was the way Sandy signed her work for the next half year, with a curved line across the page, as in Figure 6. It was quite an accomplishment for her, because one of the main reasons that she was willing to go through these restraining tasks was that she desperately wanted to write her name.

Continuation of eye-hand coordination exercises included more games such as the "road following" in Figure 7. By designing the roads so that they assumed the shapes of letters, such as "S", further letter training was accomplished along with the eye-hand exercises. Sandy had to learn that "S" involved turning plus a change in direction. Thus, "S" came to be conceived of as a series of turns and changed directions, plus stopping. Alternating the direction of her turns was the "turning point", so to speak, as far as she was concerned, in being able to draw the first letter of her name.

But one problem remained. It made no difference to her whether her letter was held in a vertical or horizontal plane. Sandy's directional world was confused, so it was necessary to emphasize the further development of spatial relationships and position in space. Letters and forms were reproduced by breaking them up into smaller segments, such as with marbles or peg boards. In figure 8, the circles are holes and the black, filled-in areas are marbles. A design is presented and the child tries to reproduce it. The child gains experience in developing relationships between the segments of the figures. These procedures led into the "S" being presented by the marble procedure, as in Figure 9. Not only was "S" reproduced in these types of tasks, but experiences involving gross body movements were performed which involved "S" movements. In a gym, or park, Sandy learned to draw "S" in the sand, to hop skotch in an "S-shaped" area, to manipulate "S-shaped" objects, etc. Added to these multi-sensory matchings of S-shaped activities, Figure 10 shows a cut out sandpaper "S" for Sandy to trace with her fingers. Here, the kinesthetic and tactual sense modalities are combined with the visual patterns to further develop the matching of these modalities.

After a year and a half of many such training activities as I have briefly described, here is Sandy's production of an "S" in Figure 11. While the "S" is still slightly awkward, Sandy's spatial orientation and motor control are quite adequate. She had reached her initial goal. And along the way, her goal had expanded from simply writing her first initial to the strong desire to read story books and write sentences.

Printing the remaining letters in her name is developing steadily. Sandy occasionally has right--left confusion, but it is interesting to note that, after this one letter was worked on for so long in relation to her overall perceptual-motor patterning, other letters came relatively easy. She now has a reading vocabulary of about 200 words and reads first-grade primers. And this was a child who was going to be left "uneducable" because of the severity of the damage to her brain. When subjected to retraining procedures evolving from recent ideas about perceptual-motor development, Sandy was able to develop capacities beyond those expected for her. Her increased self-confidence strongly enhanced her emotional development.

There are a great number of Sandys. Most re-educational programs overlook the importance of proper integration of basic skills. They don't start at the beginning of the development of these perceptual-motor skills, but start very often at the symbolic level, with words, diagrams, and spoken thoughts, assuming that the child has appropriately integrated basic skills and that he has a consistent and reliable perception of his surroundings. But what happens if these skills have not been developed? Words on a page may become a mass of meaningless jargon. The child may not be able to hold these symbols together into words, phrases, or groupings. The words may not hold still. They may move about the page, and they may look different from time to time under various conditions. The child with a poorly developed space and rhythm dimension may hear the verbal discussion as a somewhat meaningless jargon of words.

For these children, the standard re-educational techniques will cause difficulty, not because of the content, but because of the mechanics of the presentation. Therefore, one must break down the mechanics for these children. All the efforts to teach specific skills had not worked with Sandy. Persons had worked with her for two years to get her to draw on the basis of tracing, but it wasn't until the entire series of events were worked with, starting with the very basic motor problems, that a major change in her functioning occurred.

The person with cerebral palsy begins with a serious sensory-motor problem. He is handicapped from the beginning in developing a whole series of basic skills, since the foundation of his skill development has been impaired. Since motor control in cerebral palsy is usually variable, it is difficult to develop a stable perceptual world of time and space. Some new approaches to re-education have been discussed. It seems to me that they hold some promise for changing deficient patterns of function, such as in cerebral palsy. Exaggerated claims or counter claims for these new approaches should be subjected to intensive and vigorous research. After we get the ideas from intuitive clinical work, such as with Sandy, it is really only by well-controlled scientific analysis that we can be sure of the generalizability of these results.

Are the results of brain disfunctioning irreversible? Can retraining procedures starting at the basic skills and emphasizing flexibility in patterning, create neural reorganization? Can these techniques develop potential functioning previously felt inaccessible? Is it easier to retrain these patterns in the preschool years? How far can these techniques go in changing the overall functioning? The answers are unknown. It's possible that we could be dealing with a redefinition of the entire re-educational process for the cerebral palsied. If these new training approaches could help, re-education would change from training the individual within his present capabilities on a limited series of tasks to retraining entire patterns of abilities which could then be generalized into many more areas of functioning.

ADDRESS BY

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UNITED CEREBRAL PALSY ASSOCIATIONS'
15th ANNUAL CONFERENCE
March 12, 1965 Los Angeles, Calif.

"CERTAIN ASPECTS OF THE FUNCTIONAL STATUS OF THE FETUS IN UTERO"

Many, if not all, instances of cerebral palsy have their origin in utero, while the baby is still inside the mother. The exact mechanisms are not well understood or delineated. Thus, the objective of our studies supported by funds from United Cerebral Palsy Association has been "to obtain basic information on certain aspects of the functional status of the fetus in utero." In these studies we have focused particularly on the circulatory and pulmonary systems and possible interrelationships between the status of the mother and the fetus in these areas.

We have used pregnant sheep in our investigations for the following reasons:

1.) They are placid animals and therefore easy to handle.

2.) The fetus at term is large, weighing the same as a newborn infant, and therefore studies involving frequent sampling of the body fluids of tissues are not greatly restricted as they would be in smaller animals.

3.) The fetus is connected to the placenta by a long umbilical cord and therefore manipulations with the fetus permit more freedom.

4.) The placental attachments remain in good condition for many hours even though the fetus has been removed from the uterine cavity.

Over 200 experiments have been performed on sheep by us over the past several years. From all of these experiments I would like to make a general statement and then describe in greater detail some of our findings. The general statement is this: I am impressed with the many mechanisms that exist within the mother and the fetus that protect the fetus against possible damage or injury. In other words although one might predict that the rapidly growing sensitive fetal tissues would be easily damaged by malicious events occuring within the mother, this in fact seldom happens and most fetuses grow to be normal children.

Now for some specific examples from our research efforts. Our first studies involved the effect of alterations in the mother's blood pressure and blood flow on the fetus. Our preparation for these studies is shown on the first slide. Ewes at term were studied under spinal anesthesia. The uterine artery was used for blood flow measurements with an electromagnetic flow meter. A small incision was made in the uterus and a placental artery was used for fetal pressure measurements.. A placental vein was cannulated for injections into the fetus. The umbilical artery was used for blood flow measurements. Various drugs were injected into the maternal or fetal circulations and the above variables were then monitored as shown in the following slides. From these studies the following conclusions were drawn:

1.) Epinephrine and norepinephrine in the doses used either did not cross the placenta or failed to do so in amounts or form sufficient to cause cardiovascular effects in the fetus.

2.) The term fetal lamb is capable of responding to drugs pretty much as the adult sheep.

3.) The pregnant ewe has some basic regulatory mechanism which maintains uterine blood flow in spite of sustained increases in maternal pressure of 50% or greater. This suggests that these agents if produced "physiologically" would have no effect on the fetus.

4.) Reduction of uterine flow up to 60% produces no fetal cardiovascular effects.

More recently we have become interested in the status of the fetal lung and what its role might be in utero. As you know the fetus receives its nutrition including gas exchange across the placenta from its mother. Thus, the fetal lung is not used at all for gas exchange (ie. oxygen and carbon dioxide) as it is immediately after birth when the placental circulation ceases and the baby takes its first breath. Many contend that the fetus normally breathes in utero and thus when delivery takes place he continues to do what he has been doing in the past, only now he exchanges gas in air rather than gas in liquid. The next slide shows the milieu of the fetus. It is our contention based upon our studies, as well as those of others, that the fetus does not normally breathe in utero, instead the lungs are motionless. However, the lungs do have a function in utero, they produce a fluid similar in some ways to the formation of urine by the kidneys. This fluid appears to be formed at a constant rate of 10 to 40 cc per hour (slide) and has special chemical composition (slide) unlike that of amniotic fluid or urine and more like that of fetal serum. Normally it contains a large amount of susfactant, the substance which is deficient in babies dying of hyaline membrane disease who also commonly have cerebral hemorrhages.

Further evidence that the fetal lung forms a fluid in utero has been obtained by two medical students working with me last summer. In pregnant rabbits near term, under sterile conditions the uterus was exposed and alternate fetuses were operated upon and the trachea was tied off. The fetuses were replaced and the mother was allowed to recover. Several days later, the mother's abdomen was again opened, and both the operated and unoperated fetuses were removed. Their lungs were weighed and their volumes were measured. As seen in the next three slides, those fetuses whose trachea were ligated always had lungs with larger volumes, greater weights and distention of the lung spaces due to the accumulation of fluid that could not escape.

Finally, evidence from amniography indicates that fetuses do not breathe in utero unless they have been stressed. Substances injected into the amniotic cavity do not normally appear in the lungs but rather are swallowed and appear in the gastrointestinal tract as shown in the next slides.

Obviously much more work needs to be done in the areas I have discussed. Currently we are investigating the effects of alteration of both maternal and fetal gas concentrations on fetal function.

ADDRESS BY

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UNITED CEREBRAL PALSY ASSOCIATIONS'
15th ANNUAL CONFERENCE
March 13, 1965 Los Angeles, California

"ENCEPHALITIS -- COMMON CAUSES AND AFTER EFFECTS"

Encephalitis is inflammation of the brain. Any involvement of the brain by inflammation is a serious matter. However, we are learning, that encephalitis can occur in a very mild or inapparent form, but also can be extremely serious.

The causes are complex and vary all the way from lead, which is called an encephalitis, to the congenital form which we all know as rubella or German measles. There are many new and interesting aspects of this disease. The causative virus has been discovered. We know that babies born of infected mothers are still carrying the virus, and even up to nine months after birth may infect nurses and people who take care of them.

These are the rare forms of encephalitis which occur following "common colds", measles, mumps, chicken pox, and vaccination. Recently, the Public Health Service has decided to list these encephalitides as post-infectious. The term is unfortunate because it implies something happening after the initial illness and thus having a different cause. We know that many of the encephalitides which follow acute respiratory illnesses, the "flu", and many of the new virus diseases are actually due to the virus. Coxsackie, ECHO, influenza, mumps, and chicken pox viruses all have been isolated from the nervous system. Signs and symptoms of encephalitis may also precede the primary illness such as measles and mumps.

Measles is a world-wide disease, much more important than poliomyelitis. In 1960, 85,000 children died of measles in India. It is the most common cause of death in children in many countries in Africa. Over 400 children die of measles every year in this country. The problem with measles is complacency and indifference. There is an excellent vaccine which I consider the greatest advance in pediatrics in the last decade. The major problem is to get people to use it.

There are over 100 new respiratory or "cold" viruses. Any one of these may on occasion cause encephalitis. We know that the Herpes Simplex (the cold-sore virus) which many of us live with can actually produce encephalitis and death.

Let me say a few words about viruses and virus diseases and how we do research with these elusive agents. Viruses are the smallest and simplest forms of life. They are totally dependent on other forms of life, so we don't believe they were the original form of life. But through viruses we are learning about the very structure and "secret of life itself."

I like to compare virus diseases to an iceberg. Most of the illness may be hidden from view. Nearly everyone in this room has had polio two or three times. Viruses cause inapparent or mild diseases and we only know by blood tests that we're actually having these infections. And there probably isn't more than one in a thousand that actually get encephalitis or paralysis. This does not seem to frighten most people. When virus diseases are mild they produce what we call a "common cold." Even polio may be just a "summer cold". When it gets worse it may invade the central nervous system, and cause various forms of encephalomyelitis and paralysis.

I want to show you just a few pictures of viruses taken by the electron microscope. The upper right is an influenza virus. It's one of the medium size viruses. The largest is vaccinia and the very tiny one is poliomyelitis virus.

Viruses have now been crystallized. Crystals, like sugar and salt, can be put on the shelf and years later be taken off and actually produce life. This is a picture of the coxsackie virus, and you can see the crystal is made up of virus particles. These were photographed with the electron microscope. The lower one is crystals which we can see with light microscopes.

The next slide shows adenoviruses, one of the newer viruses that causes tonsillitis in all of us. We all have antibodies as adults. There are over 30 different types. Children frequently get this illness in the first year of life. These agents have been isolated from the brain and are known to cause encephalitis.

The next slide is a diagram of nucleic acid. This is the Watson-Crick model. This is a picture of Dr. John Enders who won the Nobel prize, along with two pediatricians Drs. Weller and Robbins, for finding out that viruses will grow in tissue culture in test tubes.

This is a picture of normal human cells growing in a test tube. When we mix in a virus it causes damage to these tissues and this is the way we identify the virus. If we put antibodies in with the virus, the changes are prevented and then we know we can neutralize that particular agent. This reaction was caused by a measles virus. I want to show you the hallmark of the measles virus, which is giant cells or a fusion of cells and also specific inclusion bodies in cells.

The next slide shows these little bodies in the cell. These little circles with the red spots in the center are nuclear inclusions. The red spots outside are in the outer part or the cytoplasm of the cell. This is a giant cell which was first described in 1910 in association with measles pneumonia. We know now that the measles virus causes these inclusion bodies and multiplies in the cell. The next slide shows how they grow in tissue culture, much the same as in our bodies, in lymph nodes, lung and other tissues.

As we look at these with the electron microscope we see the threads of nucleic acid. When we find these inclusion bodies in the brain we can be reasonably certain that we may be dealing with the agent itself which is there causing damage and not some other process.

Let me tell you about Peter Panum. Panum was a Dane who was sent to the Farroe Islands north of Scotland to study an epidemic of measles, a very severe one that involved most of the people on the island. He wrote an account of measles which has become a medical classic. This was a hundred and twenty years ago in 1846. The following is a quote from his paper: "The measles is a disease so generally familiar and so almost trivial that it might be supposed that observations in regard to it would offer nothing new except in special cases with more or less rare complication." There were over 102 deaths on the Farroe Islands in that particular epidemic. It seems that measles has been treated with complacency for a long time.

I did want to give you some idea of measles and some of the serious complications that occur. These patients recover in a few days or may be in a coma for weeks and months and sometimes recover, but as high as 50 to 60% may have after-effects or brain damage. We have recently been studying a series of deaths and most of these children have convulsions and high fever before they die, often in the admitting room of the hospital. You can see in this study that 38 of 67 had convulsions and four of these died in a state of stauus epilepticus.

Cerebellar ataxia occurs in a third of these patients. Myelitis which is really an involvement of the spinal cord and paralysis can occur; also weakness, paraplegia, retrobulbar neuritis, blindness, and emotional disorders.

On the next slide I have listed the neurological complications of measles and these may occur following any of the mild viral diseases, so-called; convulsions, tremors, spastic conditions, muscular weakness, hemiplegias, retention of urine, loss of speech, mental and emotional disturbances, visual difficulties and optic neuritis.

The two final slides I think are very critical and important. They show the results of a study done by a Swede by the name of Nilsby. He studied the end results of diseases called spontaneous encephalitis and those following catarrah inflammations or "colds". The cases were followed from two to twelve years. It is the only really longitudinal study that I know of on the after-effects of many of the common viral infections. A few cases of chicken pox, varicella, morbilli which is their word for the measles, or rubeola, a few cases of mumps, whooping cough and vaccination are included, making 167 in all.

After two to twelve years you can see that as high as 16% of these children who recovered had convulsions, weaknesses, paresis and emotional disturbances.

I would like to conclude with a brief summary by stating again that encephalitis may occur in apparent or inapparent form, much more commonly than previously recognized. Measles is a serious disease with serious after-effects and everyone who has not had measles should be vaccinated.

There is more and more evidence that encephalitis is caused by many common viruses which also cause mild or trivial illness. They may have serious after-effects such as convulsive disorders (epilepsy). I dislike the word very much but I believe we are on the verge of learning what epilepsy may be due to and perhaps many other neurological and behavioral disturbances.

ADDRESS BY

EDUARDO EIDELBERG, M.D.
Division of Neurobiology
Barrow Neurological Institute

at

UNITED CEREBRAL PALSY ASSOCIATIONS'
15th ANNUAL CONFERENCE
March 13, 1965 Los Angeles, California

"BRAIN RESEARCH AT THE BARROW NEUROLOGICAL INSTITUTE, A NON-UNIVERSITY CENTER"

The Barrow Neurological Institute is a research, teaching and treatment institution which is part of St. Joseph's Hospital, a medium-sized community hospital in Phoenix. Physically it occupies the northeast wing of the hospital, with six floors having a combined area of about 80,000 square feet. It includes 87 patient beds, intensive care unit, operating rooms, radiodiagnostic services, etc., forming an integrated unit. Its teaching programs at the clinical level include approved residencies in Neurology and Neurosurgery.

It has no formal affiliation with any University or Medical School at present. About half of the full-time Institute staff hold teaching appointments at Arizona State University (ASU), and a number of Ph.D. candidates from ASU are getting part of their training and doing their theses at the Institute. A post-doctoral training program in the basic neurological sciences is being established.

There is some originality to the concept of establishing fundamental research in the nervous system inside a general hospital framework. It has been tried with success in University hospitals like Massachusetts General or Royal Victoria (Montreal), but on the basis of their medical school affiliation. It is too early to predict whether or not the stresses and strains caused by the introduction of investigators in the basic sciences, mostly Ph.D.'s, inside a community service context will allow for a flourishing development. So far it seems successful and perhaps worthy of imitation. The main reason for this last statement is that such an institution places the basic scientist in close physical contact with everyday medical reality without making him subservient to immediate service needs. This gives him both the freedom of choice in his research, that is an essential requirement for any serious work, and the incentive of being able to discuss the possible clinical applications of his investigations with the people who will do it. On the other side it gives the clinician a closer personal relationship with the people in the laboratories. A number of myths and cliches about each other become dispelled as a result.

The problems in such an institution derive primarily from its unclassifiable status, a most disturbing fact for governmental and non-governmental granting agencies, which are used in dealing with Universities that operate hospitals but not with hospitals which attempt to behave as University medical centers. In spite of this problem the Institute has been able to secure the outside support needed for its basic operation.

The actual research programs at the Institute can be subdivided into four groups:

1. Research on patients with neurological disturbances, especially epilepsy, dyslexia or behavioral problems of organic origin. Here what is sought is a probe into the patophysiology of the functional deficit.

2. Research into the electrophysiological mechanisms of epileptogenic activity in the human.

3. Research into the structural changes in the neoplastic brain cell.

These programs are the responsibility of the Divisions of Neurology, Neurosurgery and Neuropathology respectively.

4. Research into the normal and abnormal functioning of the nervous system. This is the responsibility of the Division of Neurobiology. It comprises sections of Neurochemistry, Physiological Psychology and Neurophysiology.

At the present time, the laboratory of Neurochemistry is involved in several investigative programs having to do with the role of metal binding in epileptogenic tissue and in the action of anticonvulsants, with a study of the metabolic pathways followed by glucose in brain and with the mechanisms of action, at the cellular level, of psychoactive compounds. The Laboratory of Physiological Psychology is concerned with the central mechanisms of visual perception and a study of the processes responsible for chemically-induced hallucinations. The staff of the Laboratory of Neurophysiology is continuing their research on the basic cellular functions of the structures of the limbic system, the "emotional brain".

I would like to conclude this presentation by expressing the gratitude of the Barrow Neurological Institute to the United Cerebral Palsy Foundation for its support and our hopes for continued cooperation in the future.

Remarks By

Sidney Carter, M.D.
Eisenhower-United Cerebral Palsy
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College of Physicians and Surgeons
Columbia University
New York

at

United Cerebral Palsy Annual Conference
Los Angeles, California

March 12, 1965

In 1962, the United Cerebral Palsy Research and Educational Foundation established the first United Cerebral Palsy Clinical Professorship in Neurology, at Columbia University by a grant from the Dwight D. Eisenhower Fund for Research in Cerebral Palsy. I was honored by being chosen as the first recipient of this award and have been asked to discuss with you Columbia's philosophy in developing such a Professorship, my own experiences as the program has developed, and its potential for expansion in other medical schools.

The College of Physicians and Surgeons at Columbia University has had a long and illustrious record of contributions to the advancement of medicine. In establishing this Professorship in Neurology, with support from a voluntary health agency, Columbia was the first University to acknowledge and accept its responsibility to a segment of our population frequently neglected in medical education, that is the neurologically impaired child.

Cerebral palsy is most often the result of fixed or static lesions of the brain, and, in the past, neurologists had little to offer these youngsters. The vacuum created by this therapeutic nihilism resulted in cerebral palsy becoming the province of other branches of medicine. It requires little effort to remind us of the contributions of Winthrop Phelps from orthopedics, and of Bronson Crothers from pediatrics. Neurology, under the direction of Dr. H. Houston Merritt, is an outstanding and particularly strong department at the College of Physicians and Surgeons. It was the first to develop a Division of Child Neurology and it is of added significance that Columbia elected to establish the new Professorship in this department. By so doing, it re-emphasized the responsibility that students of the nervous system have to the brain-impaired child.

The University recognized that even though the award was to a specific department, the person chosen should not be parochial in his outlook. It indicated to the academic community of the Medical School that this individual would be expected to cross departmental lines at both basic and clinical levels in his efforts to explore all the facets of brain damage. It assigned to the new Professor the task of coordinating all the activities of a great medical center as they relate to cerebral palsy and allied disorders.

As the United Cerebral Palsy Professor at Columbia University, I am involved in research, the care of patients, teaching, and in many community projects. The Columbia-Presbyterian Medical Center, the result of a union between the College of Physicians and Surgeons of Columbia University and the Presbyterian Hospital, has a large number of investigators, clinicians and teachers, many of whom are directly and indirectly involved in the problems of neurologically handicapped children. Some of these scientists are attempting to delineate the details of the normal development of the nervous system; others are studying the effects of infections and drugs on the developing brain. An important facet of our program concerns itself with the clinical investigations of involved children. Recently an infant was found to be deficient in an enzyme which permitted ammonia to accumulate in the blood stream and thus impair brain function. The utilization of a low protein diet corrected this defect and permitted normal brain development. Investigations, such as this, are of importance in the prevention of cerebral palsy.

In my capacity as the United Cerebral Palsy Professor, I have had the opportunity of directing such clinical studies and of advising other investigators in their work on animals, particularly when it had an application to brain disorders in childhood. My title and my interest have opened laboratory doors at all levels.

The clinical aspects of medicine, particularly as they are related to children, are heavily emphasized at the Medical Center. Babies Hospital, an integral part of this Center, has 206 beds for sick children. Thirty of these are under the supervision of the Pediatric Neurology Service, of which I am the Director. It is the primary responsibility of this Section to study and treat children with disorders of the nervous system, on both an inpatient and outpatient basis. In the outpatient department these activities are carried out in the cerebral palsy, pediatric neurology, and epilepsy clinics. Each year an average of 500 children are admitted to the inpatient service and some 3,000 are seen in the clinics.

The obvious lack of adequately trained physicians in the care of neurologically impaired children has been one of my principle concerns. A training program in child neurology was established and subsequently enlarged at the Columbia Presbyterian Medical Center. This has led to the creation of a new breed of physicians who have an unusual knowledge of the function of the developing nervous system in normal and impaired children. Some sixteen of our graduates have joined faculties of other universities as Chiefs of Pediatric Neurology Sections where they continue their activities as teachers and investigators. As the result of this program, child neurologists are now available for the care of children with cerebral palsy in such wide spread regions as Utah, Colorado, Georgia, Pennsylvania, Florida, North Carolina and Maryland.

In addition, we have the responsibility of teaching young physicians who are training for careers in pediatrics, general neurology and orthopedics the fundamentals of cerebral palsy and allied disorders. By means of frequent postgraduate courses in child neurology, we have made available the recent advances in our knowledge of disorders of the nervous system to practicing pediatricians, neurologists, neurosurgeons, psychiatrists, physiatrists and orthopedists.

The enthusiasm and activities present in our teaching setting have stimulated undergraduate interest in child neurology. By contact with dedicated teachers, medical students have been made aware of the problems of children with damage to the nervous system. The practical management of the handicapped child is taught at the bedside and in the clinics. The United Cerebral Palsy Research and Educational Foundation in supporting a Professorship, implied by that term that the recipient would be a person maximally involved in teaching. I have taken their mandate literally and devote a great deal of my time to this important area.

In a city as large as New York, there are a great number of neurologically handicapped children with educational, recreational, vocational, psychological and long term care problems. To help meet these needs there exists a number of voluntary health agencies, such as: United Cerebral Palsy of New York City, the Association for the Help of Retarded Children, The Association for Brain Injured Children, and the American Epilepsy Association. Each of these deal with a particular symptom of brain damage. I serve on the professional advisory councils of most of these organizations and frequently act as a liaison.

Perhaps the best way I can summarize my experiences as the United Cerebral Palsy Professor is by telling you the story of the four blind, wise men who encountered an elephant for the first time. Each came in contact with a different part of the animal. One grasped the trunk and reported his discovery of a great horn; another put his arms around a leg and described an enormous tree trunk. The third wise man on placing his hands on the elephant's side, spoke of a great wall; and the fourth who seized the tail, talked about a long rope. Each tended to interpret his findings in a very narrow sense, within the limits of touch. Lack of vision made it impossible for them to know that in coming in contact with an individual part, they failed to appreciate the entire animal. I would like to believe that one of my major functions is to serve as the eyes for the investigators, clinicians, teachers, and those devoted to the social aspects of brain damage. It is hoped that I have been successful in making them aware of the whole child.

It is now apparent that there is an urgent need for additional Professorships. Three factors should be considered in creating United Cerebral Palsy Professorships at other medical schools. The person chosen should be one who has already shown a potential in the field. Ideally, it should be an individual who has an interest in the nervous system and a knowledge of children. It should be established in a university setting with strong departments of neurology and pediatrics and where basic and clinical research flourish. Finally, it should be in a community with a large number of neurologically handicapped children where the stature of the title can be utilized as a rallying point for the many activities devoted to such children.

In closing, one might ask: "Where goes Cerebral Palsy?" We are all indebted to the pioneer clinicians and investigators for their past contributions. The future holds the promise of prevention and a more dynamic therapy. This future promise will in part be achieved by the establishment of additional Professorships.

ADDRESS BY

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UNITED CEREBRAL PALSY ASSOCIATIONS, INC.
15th ANNUAL CONFERENCE

March 13, 1965 Los Angeles, California

"EDUCATION FOR SELF-SUFFICIENCY"

(Abstract)

Children with cerebral palsy are people. Each child is a person whose total future lies ahead. This should be planned for so that his life history will be as self-sufficient as personal and professional assistance will permit.

Initially the treatment emphasis is related to the child as patient. The roles of orthopedist, therapist and other medical-social personnel are directed toward the physical disabilities and their amelioration. But the patient is also a person who needs the full understanding and informed support of his parents, his brothers and sisters, and his relatives, age peers, neighbors and community. He further needs personality evaluation and parent counseling by school psychologists for educational guidance. He will soon be a pupil and in this role will require special education and suitable classroom and building facilities.

These resources require careful synthesis of inter-disciplinary, home, school and community collaboration all directed toward most probable adult needs. This is specialized "adultation", the planned, personalized, implementation for optimum self-help, self-direction, useful career, and social living. This is an evolutionary process with changes in relative emphases as particular growth stages are anticipated and lived thruemphases which are geared toward success, which maximize assets and minimize deficits, which instill confidence and belonging, which reckon with degree and nature of handicap but which strive for the best utilization of available talent and the most hopeful realization of individual potential.

ADDRESS BY

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at

UNITED CEREBRAL PALSY ASSOCIATIONS'
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March 13, 1965 Los Angeles, California

"AN APPROACH TO THE ASSESSMENT OF LANGUAGE DISORDERS IN BRAIN DAMAGE"

One of the symptoms following brain-damage is the loss or impairment of language, usually called aphasia. A person who suffered from a stroke is frequently made unable to speak even though he may understand what is said to him. After a brain trauma, e.g., from a gunshot wound, a patient may no longer be able to find the appropriate words he is looking for; he tends to hesitate, describes what he wants to say with other words and often compensates for his defect so well that it is hardly noticeable to the casual observer. If we take a closer look, however, we find that such a patient may suffer from a much more extensive handicap than that: He may have the same difficulties in writing and reading, his memory may be impaired, he may be unable to do simple arithmetic tasks and so on. Thus it appears that a seemingly circumscribed loss turns out to be a much more severe handicap of verbal communication in general. Most of what we plan, think and do, most of our social contacts and many other functions are mediated by language.

The situation is more severe yet in the child who suffers brain damage at an early age or at birth. Some of these children never develop adequate language and consequently are handicapped in their general intellectual development. Hypothetically, such children may, of course, be severely retarded in their language, but normal in intelligence, a condition sometimes described as "developmental aphasia", but the usual result is a retardation of a more general type.

The consequences of handicaps in verbal communication for the individual are grave. The handicap almost automatically excludes him from many opportunities in life and threatens seriously his possibilities for self-support. It is no wonder then, that investigators throughout the last 100 years have placed great emphasis on the study of language disabilities. Today, the efforts of speech pathologists, neurologists, neurosurgeons and psychologists are invested in this area.

During the past 30 years several investigators have ventured into the laborious task of constructing a detailed technique for the examination of aphasia. I am going to report to you about some of the most recent results coming from our own effort, an aphasia examination designed by Dr. Arthur Benton, myself, and our team at the University of Iowa (Spreen and Benton, 1965).

I will not discuss in detail why we felt it was necessary to devise our own examination instead of using one of the available test batteries. The differences of our examination to others will be apparent to those who are familiar with the older techniques. Suffice it to say that we were dissatisfied with some of the theoretical constructs apparent in some of the batteries, in the lack of standardization of others and in the coverage of the various types of language functions and the number of test items used in some of the existing batteries.

I think the easiest way to proceed will be if I demonstrate what we actually do in the examination of our patients for language disorders. I will then try to show what results we get from the examination and how we can draw conclusions from them.

The core of our examination is a simple set of common objects. We actually have 4 different trays with 10 objects on each. The first task is called "visual naming". This means that we investigate name-finding in the patient by having him name all the objects on this tray and - if he has difficulties - on all four trays of the test. Another task is called "Description of Use". In this task the patient can use his own words in a description of what the object is used for. Frequently, naming difficulties do not interfere very much with this type of task, but the patient who is unable to express himself, or the patient who is unable to form a grammatical sentence will show difficulties. As you see, by comparing the performance of the first two tests, we have gained a distinction between the patient who cannot express himself and the patient who merely has difficulties in finding names. There is, of course, still the possibility that the patient cannot perform either task because he does not recognize the things on the tray, i.e., because he has an agnosia - assuming for the moment that his vision is all right. A simple check of this possibility would be a visual matching task, where the patient has to find an object shown to him among a number of other objects. This test is included later in the examination.

Let us assume for the moment that our patient merely has name finding difficulties. Usually, a patient with name-finding difficulties will have trouble no matter whether he sees, feels or hears the sound of an object. However, there are exceptions to this rule which may be highly important for the type of brain-damage involved,(Geschwind and Kaplan, 1962; Benton, Spreen and Van Allen, 1965). Our next task therefore is "Tactile Naming", separately for the right and left hand, and it is performed under a rectangular box with a drop-curtain in front.

Here again, the patient may have trouble recognizing the object with his hands rather than in finding names. This is checked by an additional task in which the patient is asked to find the object in his hand from among a number of objects which he sees in front of him.

Three other tasks are tests of immediate verbal memory. We examine this by palying recordings of sentences of increasing length to the patient who is asked to repeat each sentence right after he heard it, (Spreen and Benton, 1963). The same task is repeated with digits and finally, digits are presented but the patient is asked to repeat them in reverse order (Blackburn and Benton, 1957).

The next tasks involve the understanding of language, first of simple names, then of sentences (De Renzi and Vignolo, 1962). Further checks are made of the ability to read aloud, read silently, to write spontaneously, to write from dictation and to copy written sentences.

Without going into details for every single test, I think you understand what we actually do. The next problem is what to do with the results and how to interpret them. We all have naming difficulties now and then; where do we draw the line and call this a language disability, an amnestic aphasia? Because of inattention, we may occasionally miss part of a complicated message which is transmitted to us; where are the normal limits and when do we begin to speak of a receptive aphasia? If a person suffers from a mild stroke which affects his language, we may be in a position to re-examine him after a year. Can we talk about complete recovery of his language disturbance if he only occasionally has difficulties in writing?

This obviously calls for good information about the performance of normal, ie., non-brain-damaged persons of different ages and of varying educational background. Our first task with the language test which I described to you was therefore to examine a sample of adult patients with non-neurological diseases. We prefer to test hospital patients for this purpose since we can assume that their attitude towards testing is similar to the attitude of those patients for whom the test is designed. Since the difficulty level and the highest possible score, the "ceiling" of these tests varies, we found that for some tests normal adult patients make no errors whatsoever. On other tests we find a normal spread of scores which helps us to define the "average range". Since some of the tests are affected by age and educational level, corrections had to be introduced.

Another group of interest for the test are children. Here again, we tested normal children first, sample groups for every age level from 2 to 13 years. This gives us a fair idea of the development of these language functions. We learn, e.g., that children at the age of 8 can identify all the objects used in the test. In the examination of a given child, this will provide the norms for an estimate of the developmental retardation in certain language functions and we will be able to compare whether this retardation of language development broadly affects every type of language performance or whether it is restricted to only a few areas which may then be attacked by special training procedures.

Our primary interest, however, was in the adult aphasic patient. We felt that it was desirable to compare the performance of a given patient across all the tests so as to provide us with a profile of his language defect. Here again as with children we would expect that some patients may suffer from a rather broad, general deficit, whereas others might show a circumscribed defect in just a few particular areas of language performance. In order to allow such a comparison from test to test, we transformed our results with adult non-brain-damaged patients into standardized scores, i.e., into percentile ranks.

A profile like this works quite well with near normal patients who have no more than a very mild aphasia. If, however, a more severe aphasia occurs, the profile is no longer sufficient. This aphasic, e.g., had severe deficits in most language areas. He is no longer within a range that can be entered into the profile. This means that we are no longer able to compare his performance from one test to the other. This is why we decided to develop an extended profile which will allow the interpretation of scores obtained in the person with language deficits. Those of you who are familiar with the various theories of aphasia and with the problems of test construction will appreciate the difficulty of choosing the appropriate yardstick for such a profile. We cannot simply extend the normal profile downwards - at least not with percentile ranks - since no normal subject scores as low as most aphasic patients. If we were to construct a profile based on the performance of a group of aphasic patients, one would have a choice of various procedures; One could e.g., adjust each scale in such a way that it would be based on those patients only who were defective in their performance. Or one could base the profile on the performance of a selected but weighted group, e.g., on 20 patients each of what most researchers would agree were amnestic, expressive, and receptive aphasics. However, in either case the construction would be biased by our own preconceived notions of so-called aphasic syndromes and our choice could easily be attacked on theoretical grounds. We have no perfect solution, but decided to experiment with a new scale which is based on the score distribution of an unselected sample of aphasic patients, i.e., what we believe is fairly representative for the type of patient seen in a neurological service of a Midwestern university hospital.

What was well out of range in the normal profile, now turns out to be a profile reflecting some of the strengths and weaknesses of this patient. Obviously, he is severely damaged, his language abilities are poorer than those of 80% of all aphasic patients. His deficit is rather global, i.e., all language functions are affected, yet he apparently understands better than he can speak and he is able to produce recognizable words on free association. He can read only a few simple words, he can copy a written text poorly, but he cannot write spontaneously.

Another aphasic patient's profile compared to the normal adults shows only a few deficits, mostly in name-finding and verbal memory. Again the performance is well below the normal range and we compare these results again with the performance of a group of aphasic patients.

Against this background, the patient has only a mild impairment. On the average, she performs better than 70% of all aphasics. What appeared to be severe naming-deficit now is still visible, but is no longer an outstanding feature, but more a typical deficit as seen in aphasics.

One could conclude from some of the profiles described that most of the time, a language deficit is general without too many variations from one patient to another. While this may be true for part of our patients, I will describe two more profiles with some more exceptional pictures.

This patient's deficit (on the aphasia profile) is primarily a deficit in the immediate memory for numbers and sentences. He cannot repeat what he hears and has some milder difficulties in understanding speech. This type of deficit has indeed been described as "repetition aphasia" or under another name as conduction aphasia - with the assumption that the patient can speak as well as understand, but that the conduction between reception and expression must be defective.

The final patient again has word-finding difficulties and difficulties in free-association and construction of sentences. Transposed into the profile norms for aphasics, we find a similar though mild deficit. I would like to call your attention to the first as compared to the third and fourth point in this graph. All three are naming tasks. The first point, represents the naming of objects presented visually. The third and fourth point the naming of objects presented by touch. The unusual feature of this profile is that this patient can name things better when he feels them than when he sees them. One of our present investigations is concerned with this problem. We have studied some of these patients as often as on eight occasions in order to verify such a finding. Difficulties of vision, of stereognosis and of recognition were excluded. From the evidence of some 30 patients we find that name-finding is not always a general deficit, but that in a few exceptional cases naming can be selectively impaired as a function of the perceiving sense modality. The result that tactile naming can selectively be impaired is in agreement with the previous findings by Geschwind and Kaplan. Predominantly visual naming defects, however, have been reported only in some older studies before the turn of the century (Freund, 1889). It revives an old concept of what was called "optic aphasia".

I will not go into the details of an attempted explanation. Suffice it to say that in the early literature on the subject a "deconnection syndrome" of the pathways from the optical to the language centers has been proposed and that this explanation appears to be the most likely with our cases.

Research with this kind of an examination can spread out into a multitude of different questions. Today I will mention only one other line of investigation. Aphasic patients usually are able to name at least a few of the objects in this test, for other objects the name is lost or at least temporarily unavailable. One may raise the question whether this is purely incidental or whether there is a systematic loss of certain words as opposed to others. Investigators like Wepman et. al. (1956) and Schwartz (1962) have found that words which are frequently used in our daily vocabulary are likely to be retained in aphasic patients, that rarely used words are lost more easily. Rochford and Williams (1962) have proposed that this has also something to do with the age at which the word was originally learned when the patient was a child. Words which are acquired at a rather late stage of development are lost more easily, whereas the early childhood vocabulary is still available. Our set of 40 objects provided an opportunity to check this hypothesis. From the tests conducted with children from age 2 through 13 we determined an "acquisition" age for each word, i.e., the age at which all children in our groups were able to name the particular object. Similarly, we obtained the frequency with which these words were lost in a group of 50 aphasic patients. The two sets of data were correlated and a correlation coefficient of - .92 was obtained. This is a surprisingly strong and highly significant value. It indicated that there is indeed good reason to believe that the acquisition age and the selective loss of nouns are highly related (Spreen and Benton, 1965).

There are many other possibilities for research with this approach to the assessment of language disorders. At this time studies in our laboratory investigate the language function in groups of old age patients with and without evidence of diffuse brain damage (Hammerman, 1965), of mental defectives and of cerebral palsied children. I hope that I have been able to show you some of our work in this area.

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COMMENTS BY BLUMA WEINER

This entire presentation reminded me of one of my favorite cartoons. It showed the interior of a book store and a rather ponderous middle-aged lady was saying to the clerk, "I want one that will move me, not upset me." I'm not quite certain of the general impact of our presentations this morning. I don't know yet whether I was upset, but we'll see.

In preparing for the discussion, I got hold of a couple of sheets of legal size paper and spaced things out a little bit, trying to project what our speakers might say since I had no advance knowledge of at least two of the presentations. For Dr. Pribram, I left a large space. But, since he indicated he was going to say something about monkeys, I thought the first thing I could put down was something quite true. It is true, Dr. Pribram, that monkeys are some of my favorite people. I used to walk to school in Greensboro when I was there for a few years by way of a very pleasant residential area, and I noticed in front of one house, as the days got rather warm and sunny, that there was a playpen out in the yard, and I noticed as I approached, [of course I went in a little way to see what was in it but there wasn't any baby in it], that there wasn't anything in it except some small triangular evidence of peanut butter and jelly sandwiches which had been neatly bitten into and the crust discarded. Then one day I noticed that in this playpen along with this other type of evidence was a small piece of corn-on-the-cob, and I wondered what sort of person was giving corn-on-the-cob to a baby. And then one day I noticed that there was an occupant in the playpen; it was a small monkey! Did someone say something about monkeys and humans, particularly human children being somewhat alike? All of the little ones bite the peanut butter and jelly in the middle and throw away the crust! Didn't you? Doesn't everybody? I think that technically I am limited, quite rigidly, in the extent to which I can make formal comment upon this presentation except that I would like to employ an analogy. I recently re-read Brunner's Process of Education. I was struck very much by his chapter on structure, and was reminded of it as Dr. Pribram discussed his presentation. The general thesis which Brunner was advancing was that the creative scientist who knows his subject can impart it to others. And I would like to suggest that we had a very excellent illustration of the creative scientist imparting information to others.

I would also like to suggest that you all go out and read the Process of Education because it is a magnificent book!

In Dr. Spreen's presentation, I was particularly interested in his approach to assessment of disorders and brain damage. I noted,too, that "typographical error" which would have made an entirely different presentation. My reaction to that was that many a truth is said in typographical errors because there have, I think in the past, been some "assessment disorders" -- difficulties at any rate. What impressed me, particularly, in the presentation of this manuscript was the attention to the broad range of functions which the schedule accommodated, as well as to the particular relevance to the learning areas with which we are concerned. I think it is true that we need explicit extension to assessment of children, and while it is true that the ITPA has attempted to do that, there are still some gaps in that instrument. I think that the development by the team at Iowa of an instrument which assesses various functions and which establishes normative ranges and patterns upon their own population, would be an extremely useful thing. Hopefully, its extension to a child population will emerge. It would be far more appropriate than the utilization of a rather hodgepodge test battery; a test of articulation taken from here, of sound blending taken from there, of auditory memory or whatnot from some other source. Such a battery of instruments worked out with the populations which they have selected seems to me to hold very great promise.

Mr. Wiseman's material reminded me very much of a greeting which I received a few weeks ago when I brought my first group of students to a children's service in a hospital for chronic diseases. The pediatrician in charge greeted me very brightly with "Good morning, we've been waiting for you for years." I think that Mr. Wiseman's comment about the need to think of the learning disabilities of varied groups of children, not just the nice clean, neat child who doesn't have any developmental disorders, who doesn't have this, who doesn't have that, who just has a nice plain "learning disability", is quite an appropriate reminder to us. It is true that in the development of an instrument for diagnosing and evaluating, various types of disabilities, it is important to isolate certain functions and to clarify and to cut away, as it were, certain kinds of contaminating material or conditions, in order to know exactly what is happening. But we have to be careful that in this consideration of our process -- while we are in the process of isolating and studying and defining the functions with which we are concerned -- we do not, in actual practice, isolate our populations and discard large patches of them so that children with a hearing loss, or children with a visual loss, or children with very involved neuro-motor problems are left out of any educational treatment program. I think this is exceedingly important. What Mr. Wiseman has been trying to tell us very seriously is that in our classroom work with children we should make the time count for something. Those of us, in this room, who are teachers probably have been experiencing something of a prick of conscience. How much of the time, if someone were to sit there and observe you in your work, how much of the time which you spend between nine and three actually goes to teaching, to arranging a situation so the children may learn? Or how much of it goes into activity which you, perhaps, enjoy but which you already know how to do: activities which you are repeating, demonstrating, showing, but not permitting children to enter into? Again, I'd like to refer you to Brunner's Process of Education. He deals in a very interesting way with the process of getting children involved in learning.

Finally, I must acknowledge that I felt a very warm and very special kind of reaction to having an opportunity to hear Dr. Doll's paper, because, to me, Dr. Doll represents something very special in psychology and education. The only point which I will pursue in the interest of time is simply the notation that he has attempted to articulate the parts for us and to create a whole, and he has made, very strongly the point that an individual organism acting in and upon its culture results in a person; a person who whether we are teachers, clinicians, parents or whatnot -- no matter what the role we play -- should have a very special meaning to us.

.... Bluma B. Weiner

ADDRESS BY

DOUGLAS E. WISEMAN
Research Associate
Institute for Research on Exceptional Children
University of Illinois

at

UNITED CEREBRAL PALSY ASSOCIATIONS'
15th ANNUAL CONFERENCE
March 13, 1965 Los Angeles, Calif.

"THE TEACHER'S CONTRIBUTION IN THE DIAGNOSIS AND REMEDIATION OF LEARNING DISABILITIES"

The topic I wish to discuss is the role of the classroom teacher in identifying and teaching children with learning disabilities.

First, a definition of learning disability is in order. According to Kirk, "A learning disability refers to a specific retardation, disorder, or delayed development in one or more of the processes of speech, language, reading, spelling or arithmetic." The word "specific" is especially important in this definition. It infers that some mental processes are deficient, but that other processes are in good order; or a marked discrepancy exists between the disabled areas of language and the areas that are in good condition. A learning disability occurs when there is a great discrepancy between the child's expected performance and his actual achievement. Deaf children, for example, have severe sensory losses that generally impair learning to some degree. However, a learning disability may be present if the children are unable to profit from training according to their mental expectancies. A mentally retarded child is expected to read at a rate consistent with his mental level. Failure to achieve at this level may indicate a learning disability that will further confound the educational process.

Children with learning disabilities often have extremely diverse learning characteristics. Subjects with identical IQ scores may have entirely different mental strengths and weaknesses. Generalizing about children classified as having learning disabilities is indeed hazardous.

The Institute for Research on Exceptional Children at the University of Illinois is attacking the learning disability problem through the medium of psycholinguistics or language. Psycholinguistics is defined as "how the individual develops and uses his language." This definition implies that the language process has many facets that must be operating normally in order to have normal language and intellectual development. If one or more of the facets or areas of language are disabled, normal language and intellectual development will possibly be disrupted. Consequently, poor academic achievement may be the result, as in children with unexplained reading or spelling disabilities. Language is a vehicle that encourages the development of higher mental abilities and, therefore, an improvement in language ability will hopefully yield a corresponding growth in mental ability.

In 1958, Kirk conducted a study designed to investigate whether preschool experience would improve the mental efficiency of young mentally retarded children. Standard intelligence tests provided indications of mental growth, but no instruments were available to measure language growth. Gallagher, also from the University of Illinois, conducted a study that investigated the results of tutoring institutionalized brain injured retardates. He found there was no test that could identify areas of language needing special training. Thus, the need became apparent for a test that could measure language development and be used as a basis for establishing remedial programs.

The cause of the language disability is of little consequence to the teacher. He must deal with the problem in the classroom as it exists, whether caused by minimal brain damage, a developmental lag or heredity. How is the teacher to decide on a course of action? Psychological reports rarely aid in developing an educational program for a disabled child. Generally, psychological reports decide upon proper placement for a child rather than assisting the teacher in developing an appropriate educational program. The teacher must decide how the child can be helped purely by experience and intuition.

With these problems in mind, Kirk and McCarthy developed a test, The Illinois Test of Psycholinguistics Ability, that divided the language process into nine areas. The test was to pinpoint areas in the language process that were defective. Once identified, the disability areas were to be corrected by educational methods. Recent research has demonstrated that language abilities and disabilities can be improved through an intensive program of remediation. Hart's study with cerebral palsied children, for example, showed marked gains in psycholinguistic ability after training. The group receiving the language program also showed marked improvement in reading, supporting the contention that improvement in language will encourage growth in related areas of mental ability.

The Illinois Test of Psycholinguistic Abilities permits differential diagnosis. Differential diagnosis is an evaluation process that examines the individual's mental and language abilities to pinpoint areas of relative strength and weakness. Differential diagnosis leads to differential remediation or a program of educational remediation designed to ameliorate areas of language disability. In essence, it allows the same type of diagnosis used by the physician. The physician must find the specific ailment of the body in order to properly treat it.

Education has traditionally been general in nature -- that is, everyone gets the same green pill. Special education, in many areas of exceptionality, has been content to adjust the child to the program rather than constructing programs that permit each child to grow to his maximum potential. Now, the ITPA allows the psychologist to identify the problem area and prescribe educational activities that will hopefully correct each child's learning problem. The psychologist and the teacher can now communicate meaningfully. Diagnoses can now be both placement and remedially oriented.

The ITPA, however, is relatively new and currently in the process of revision. Few psychologists are trained to administer the test or interpret the results into educational method. Though the future looks increasingly bright, the teacher's present plight remains much the same. Teachers recognize the importance of improving language, but few understand the structure of the language process or are aware of the activities that will improve language skills.

The language model used to develop the ITPA was a combination of Osgood's theoretical model of communication and Wepman's clinical model for aphasics. The communication model identifies many of the important processes that contribute to language development. This same model can be used by the classroom teacher (1) to orient himself concerning the language process, and (2) to develop a systematic educational program that seeks to improve language ability. In essence, the teacher now has the where-with-all to develop a program designed to improve mental efficiency.

The teacher must have an understanding of the language structure before he can successfully develop a comprehensive language program. The language model attempts to simplify the complex structure of language. There are five areas of processes within the language model that must be examined and remediated. The five areas of language include:

(1) The child's ability to understand information presented both auditorially and visually. The child must be able to understand and interpret meaningful signals from his environment;

(2) His ability to relate or associate different concepts. The association of ideas refers to manipulating ideas and concepts with the purpose of forming new ideas, as in seeing common relationships between two objects;

(3) The child's skill in generating ideas and expressing them either vocally or through gesture. Verbal fluency is often confused with the more productive and complex encoding process. In essence, chatter is not a substitute for meaningful language usage. Children are generally recipients rather than active participants in the school program and the expression of ideas becomes a regurgitation or rote process, offering little opportunity to manipulate ideas individually;

(4) The process of integration or closure refers to the child's automatic acquisition of the subtleties of the environment, such as acquiring the grammatical structure of our language, or the ability to integrate non-meaninful elements into meaningful wholes, as in sound-blending; and

(5) The ability to remember what he has seen or heard. Memory has three important aspects:

A. The exercise of long and short-term memory,

B. The awareness of meaningful and non-meaningful memory tasks, such as remembering the plot of a story, or arranging a series of unrelated numbers in sequence, and

C. The initial use of recognition forms of response, as in the multiple choice test, and finally, the higher level recall response.

Each of these five language areas or processes must be evaluated by the teacher to determine if a disability does exist.

The language process does not end here, however. The channels of reception and expression must be examined separately with each process. The organism receives information through various channels: by auditory, visual, and tactile-kinesthetic modes or by any combination of the three. In addition, the organism must be capable of generating ideas and expressing them in an acceptable form, which would include vocal or gestural responses. Consequently, language development could conceivably be disrupted by a faulty psycholinguistic process, a defective receptive channel, a weak expressive channel, or any combination of the three.

The classroom teacher must have this basic knowledge before initiating a developmental or remedial language program. A developmental language program is designed to systematically exercise each of the areas in the language structure in conjunction with the various receptive and expressive channels. A developmental program also serves an important diagnostic function. As the program progresses, the teacher should be alert to note those children who have special difficulties. Effort should be made to pinpoint the faulty or disabled language process and to establish the severity of the disability. The teacher must determine the degree of disability or the level at which the child can perform successfully. This indicates the level at which a remedial program should begin.

A remedial program differs from a developmental program in the degree of emphasis placed on correcting language areas that seem defective. The correction of defects in the language process should promote a more adequate pattern and rate of language development. Children tend to restrict the use of a defective function, relying on other more rewarding abilities. The person with a speech defect, for example, prefers communication through means other than vocal. Failure is a powerful conditioning agent! After a period of disuse the faulty process seems to deteriorate leaving a huge psychological gap in the learning process. Correcting disabilities encourages a more regulated development of language.

Though the remedial program emphasizes correcting the specific disability areas, the use of intact language areas often aids in strengthening the deficient areas. If the child has difficulty understanding what he hears, for example, adding pictures to the activity will often assist in remediating the auditory process. Thus, the stronger visual channel ability is used to improve the functioning of a weaker channel. Gradually, the visual cues are removed until a pure auditory activity can be performed successfully.

The activities used in a remedial program must suit the levels of ability of the children needing the exercise. The classroom teacher has much to learn from those who program materials for teaching machines. When an activity is too difficult, the programmer systematically "breaks down" the activity until it is suitable for the child. The programmer assumes the responsibility for the child not learning and so, too, should the teacher. The classroom is an ideal laboratory for learning about children and experimenting with the learning process. The experimental psychologist studies the learning characteristics of the white rat and generalizes this knowledge to the human organism. The teacher is not so limited. He can deal with the human mind directly. The teacher must experiment with educational methods and activities until they are suited to the individual child's capability.

Success is the goal of any activity and success is achieved by beginning with the simple, which the child can perform easily, and gradually increasing the level of complexity until the child can succeed only with effort. The experimental teacher may wish to explore grouping children with common disabilities. Grouping according to disability areas saves time and still treats the individual's weakness. The exceptional child needs a remedial teacher, one well-versed in individualized program planning.

Perhaps the most important emphasis in a remedial program is to exercise the disability area until it is corrected. Too often teachers are tempted to relax when indications of progress appear. Be patient, for complete amelioration of the disability may take considerable time and effort.

Evaluation should be an integral and ongoing part of the remedial program. Ongoing evaluation is highly practical because the activities used for remediation serve also to evaluate the progress of the treatment program. Ineffective activities must be identified and replaced. The teacher must also realize that no diagnosis is infallible or no one activity will help all children. An ongoing program evaluation will (1) attest to the accuracy of the initial diagnosis, and (2) provide information of the effectiveness of the remedial program; That is, are the children really benefiting from the program?

In the near future, the role of the teacher of exceptional children will markedly change. He will be more concerned with preparing the mental processes underlying social and academic pursuits. The emphasis in the classroom will be experimental and remedial. Sensorimotor activities, such as those advocated by Strauss, Kephart, Cruickshank and others, will lay the integrative foundation for intellectual growth. Training in psycholinguistics will be a prerequisite for academic work. Information from the ongoing language evaluation will provide the teacher with clues about how reading, for example, could best be taught. Does the child need visualization training before reading is possible? Are auditory closure or sound-blending exercises necessary before reading can be successful? The teacher will have a dynamic and highly professional role in the educational scheme.

Thankfully, the panacea, the cure-all claims of enthusiastic educators with favorite general educational programs for exceptional children can be replaced by systematic, individualized programs designed to increase mental efficiency and effectiveness.

As Binet remarked in 1909, "After the evil, the remedy: After exposing mental defects of all kinds, let us pass on to their treatment."

DISCUSSION ----- Samuel Ashcroft, Ph.D.

This is an enviable position as second reactor and as an anchor man in that one can check off what he was going to say that has already been said. On the other hand, it seems that most everything has been said and what I might say would be repetitious - but perhaps saying it a different way will be helpful. We've had presentations on visual agnosia, aphasia, learning disabilities and (if I can use one word to summarize what Dr. Doll has said) socialization. Four main points occur to me with respect to these presentations, and I shall try to touch on each of the presentations in connection with these points.

The first point is a concern with something that might be called clinical myopia. We frequently get so concerned with looking at people or animals or our subject matter in a clinical setting, that we get too close to the subject matter. We become so nearsighted that we lose our frame of reference. We fail to see the forest for the trees. I was pleased in Dr. Pribram's presentation to hear him avoid the clinical myopia problem. It was extremely exciting to hear him say that even in dealing with monkeys that what is important is what the animal does about it, not just the problem that we set for him. Dr. Pribram entitled his talk, "Beyond Information Theory," indicating he was not myopic. He had tried several theoretical constructs, had found them to be less fruitful than he desired and took other approaches. He concluded that "feedback" was important even in animal research; that it is not just what we put in, or think we put in, but what the individual, the animal, or the subject, does with the material. I'm reminded of a quip which has been helpful in my own teaching. It refers to the "typical dream of the schoolteacher - that all of the children learn the same thing," and we certainly know that the organism puts value on the input and modifies it in this manner of feedback.

It was interesting also that in Dr. Spreen's work he had apparently decided not to adopt a firm theoretical model. He had taken what is sometimes characterized as a "shotgun approach" with a number of tests, and with a wide range of vision - a fruitful way of examining and looking at the problem of aphasia without clinical myopia. Similarly the Illinois Test of Psycholinguistic Abilities is built upon a two-factor theory or a multiple theoretical position in communication theory - the Osgood model and the Lettman model - to develop a very comprehensive type of diagnostic instrument.

And, of course, with Dr. Doll's excellent presentation on socialization in his several stages of man, providing a breadth of view of the person as a whole in various stages of development.

The second point relates to avoiding another pitfall into which we have often fallen, the one of "overvaluing parsimony," seeking a single cause, or a single factor on which to pin behavior. In all of these presentations the investigators have realized the possibility of multiple causation and the multiple implications of the problems with which they deal.

The third point that I wanted to call attention to is sampling error. When we are studying problems of these kinds we frequently assume that individuals with cerebral disfunctions comprise homogeneous groups, that they all have what might be called the CP syndrome or CP behavior. This type of thinking may best be illustrated by the classical triad in cerebral palsy. These presentations have avoided the pitfall of sampling error and perhaps this was best illustrated by Dr. Doll's excellent presentation on socialization where the individual is looked at as an individual with all the problems that he faces, rather than as a CP person. A child with CP, not a CP child.

Finally, a point regarding generalization. We are all too willing to generalize too quickly and to leap to the conclusion that animal research or research on a small clinical population can lead us to generalizations that will be widely applicable. Overgeneralization is related to the problem of clinical myopia with which I started. We need to be very careful in generalizing from clinical findings and from research at early stages; we need judgment and perspective - analysis and reanalysis - to be sure that we do not overgeneralize before we have adequate information.

This has been an exciting opportunity to hear the whole conference and I think it culminates very well in the presentations that we have had this morning. We have dealt with some rather specific problems, but also had a range to general problems. I think if we could avoid clinical myopia, avoid overvaluing parsimonious explanations, if we could avoid the sampling error and overgeneralization, we will have taken steps toward real progress in the area of assisting those who have various kinds of cerebral disfunction.

.... Samuel C. Ashcroft

ADDRESS BY

SYLVIA P. HOWARD
Coordinator of Women's Activities
The President's Committee on Employment of the Handicapped

at

UNITED CEREBRAL PALSY ASSOCIATIONS'
15th ANNUAL CONFERENCE

March 13, 1965 Los Angeles, California

"DEVELOPMENT OF CREATIVE DESIGNS BY HANDICAPPED CLIENTS IN COMPETITIVE RETAILING"

Greetings from your good friend, Harold Russell, Chairman of the President's Committee on Employment of the Handicapped, and from all of the members of the President's Committee. It is a privilege to be here today to discuss briefly a program which has important implications for severely handicapped people, both in the workshop setting and in the home. This program, developed at the suggestion of Mrs. Arthur Goldberg, wife of the Supreme Court Justice, and Mrs. Esther Peterson, Assistant Secretary of Labor, may be one of the answers to the dilemma facing many handicapped people who cannot find employment in competitive industry.

Almost every morning the mail brings letters such as the following:

"I have a handicapped child who has graduated from high school but who cannot work outside the home. Is there anything you can suggest for her?" "I am homebound, in a wheelchair, but my hands are good and I can work. Can you help me?" "My child is retarded but has creative ability. There is no workshop in our community. What shall I do?" There are thousands of handicapped people who have no place to turn for an income.

As we all know, very often poverty and handicaps go together. This has been amply demonstrated by the national health survey of the Public Health Service which shows that 43 percent of the handicapped in the labor force have family incomes under $4,000 a year. Another survey shows that 14 percent of handicapped breadwinners in a major city were unemployed, compared with 7 percent of those who were not handicapped -- a ratio of 2 to 1. Other statistics on mental retardation and mental illness show a higher incidence among the poverty stricken. The President's Committee has been trying to cope with the problems of these people and is particularly concerned about the hard core that can never expect to find gainful employment in competitive industry.

About three years ago a new ingredient was added to the President's Committee program -- a Women's Committee -- made up of National Presidents of some of our leading women's organizations and individual members of great stature and experience in working with women's groups. This Committee has undertaken a program which we believe will pave the opportunity for gainful employment.

For lack of a better title, the program is called the Arts and Crafts program -- not a very dramatic or very accurate name -- but despite the misnomer, the ultimate aims and objectives of this program are very noble indeed.

They are: To assist handicapped people, particularly those in sheltered workshops, and those who are homebound, to produce products of good design, good workmanship, and good quality that can be sold on the competitive market at a fair price, and at a good profit; products that people will buy because they are beautiful and useful and not because they want to give the handicapped "a break." These objectives, of course, include the upgrading of quality, design, and workmanship of products already in production, and promoting the sale of quality products made by the handicapped.

At the very outset, the Women's Committee realized that, in order to achieve these objectives, the following would be needed: designers, teachers, retailers, and a corps of volunteers who would assist the professionals in identifying the handicapped in need of this program, and who would provide assistance in the various phases of the production and sale of products made by the handicapped. The program, therefore, is a professional-volunteer team effort, in which the professionals and volunteers work together to help the handicapped to produce and sell quality products.

This concept is not novel by any means. In Norway, Sweden, and Canada, rather sophisticated programs are well under way. However, in the United States, efforts have been few and sporadic.

To get the program started, the Women's Committee sponsored an exhibit of art and products by the handicapped in the lobby of the Department of Labor. Mrs. Lyndon B. Johnson, Honorary Chairman of the Women's Committee, opened the exhibit on April 29, 1964, with a challenging statement: "I cut this ribbon with the hope that what you have begun will grow," she said. That was the beginning. We could never have foreseen at that time that visitors from all over the world would be so impressed by the display. Secretary of Labor Wirtz, at the Advisory Council Meeting of the President's Committee, said that this exhibit had been received with more enthusiasm than any other exhibit shown in the Labor Department, and suggested that it not be removed until it could be taken to a larger audience.

The exhibit proved to be educational not only for the public but for ourselves. We learned a great deal from it, e.g.:(1) Some of the products were overpriced; others were underpriced; (2) The quality of some of the products left much to be desired; (3) The workmanship ranged from good to excellent; (4) With better designs and guidance, the handicapped could produce quality products that would sell at a fair price - and a good profit.

It is our considered judgment that exhibits are perhaps the best way of demonstrating the abilities of handicapped workers. Moreover, if properly promoted, the products can be a source of renumeration for those who otherwise might not have a way of earning a living.

Collaborating with the President's Committee in making this program a reality are two famous designers, Mr. Raymond Loewy, Chairman of the Board, Raymond Loewy, William Snaith, Inc., and Miss Stella Sloat of Sloat and Co. These two public-spirited individuals are gathering good designs from other leading designers in the industrial field and in the world of fashion. Since the limitations of the handicapped are a paramount consideration, the designers have been requested to keep the following criteria in mind:

(1) The product appeal to the purchaser for its intrinsic beauty as well as its usefulness;

(2) The product should be designed so that no extraordinary skill or artistic ability is required to reproduce it as a marketable product by handicapped people with severe physical limitations;

(3) The product should be relatively inexpensive to make and profitable to sell.

At this time, some of the designs are being tested. The best of these will be published in a manual and will be made available throughout the country to workshops and organizations concerned with the employment of the handicapped.

The national program is being carried out under a grant from the Vocational Rehabilitation Administration to the Women's Committee of the President's Committee and the National Society for Crippled Children and Adults which acts as a vehicle agency. However, all national organizations, private and public, are urged to join in the effort to bring this program to handicapped people all over the country. Its implications for the handicapped are many. As Mrs. Johnson has said, "Development of an arts and crafts industry for our nation is one of the available resources which is relatively untapped in this nation. It may be the answer -- as it has been abroad -- for getting dollars into poor areas in exchange for skills and crafts which automation has made obsolete."

Under the grant, a Project Director has been appointed. He is Mr. Arthur Rissman, whose background of art and merchandising uniquely equips him to carry out this program. He is stationed at the headquarters of the National Society for Crippled Children and Adults, 2023 West Ogden Avenue, Chicago, Illinois, and will assist local groups in the implementation of the program.

Following the suggestion of Secretary of Labor Wirtz, we have taken the exhibit to a larger audience -- by producing a 24-minute color film "The Fire Within," narrated by the beautiful and talented Joan Fontaine. The film affords the viewer a behind-the-scenes look at a few of the people who were responsible for making the exhibit a success -- Joseph Massaniello, a paraplegic who was taught to make beautiful jewelry as part of therapy, and whose quality of craftsmanship delights the eye; Glen Fowler, a victim of Cerebral Palsy who uses a mouthstick to create beautiful oil paintings; retardates in a classroom who turn out products of skill and beauty that stagger the imagination; Mervin Anderson, a deaf mute, who spent the first forty years of his life in a mental institution until improved techniques afforded him an opportunity to learn to become a successful portrait artist. These are but a few of the examples of the kinds of people who will be helped by the program. There are others -- in all parts of the country -- who will come forward as we demonstrate by exhibits such as this that the handicapped, if properly supervised, can produce desirable and saleable products.

The grant has made it possible for us to distribute one copy of the film to each Governor's Committee on Employment of the Handicapped, and at least one to each of the National Organizations cooperating in this program. Therefore, to obtain a copy for viewing you may write to your Governor's Committee on Employment of the Handicapped, in care of your State Capitol, or to the United Cerebral Palsy Association in New York City. In any event, be sure to see this film. Show it to civic and service groups in your community. It will motivate them to help you.

One major source of volunteer assistance is the General Federation of Women's Clubs which has adopted this program for the next two years. Also, the Association of Junior Leagues of America and the Women's Auxiliary to the American Medical Association are actively interested, and in some areas have spearheaded community action programs for the handicapped. They can be a great help to you in launching this program.

Now we come to the final -- and perhaps the crucial -- step in the process of creating and selling products -- the retail outlet. In almost every community, a retailer will cooperate in selling the products -- if they meet the criteria contemplated in this program. One outlet, the Society Studio, on the famous boardwalk of Atlantic City, has agreed to display and sell the products made by the handicapped. Initially, the exhibit contained products from all over the country. However, as designs are provided to the sponsors of the program in Atlantic City, local handicapped people will begin to make them for sale at the Society Studio. Atlantic City, a convention city where people from all over the country -- and perhaps all over the world -- come to attend conventions, is considered to be a "national showcase" which will accomplish the following:

(1) Spotlight the abilities of handicapped people;

(2) Provide financial benefits to handicapped individuals who submit products for sale;

(3) Show other communities how the project can be developed without a large outlay of money.

If it can be done in one city, it can be done elsewhere. We will help you in any way we can to follow the example. You will find it well worthwhile.

It has been a pleasure on behalf of the President's Committee to have had an opportunity to discuss this program with you for I feel that the clients of the United Cerebral Palsy Association have much to gain from it.

CHARLES S. NICHOLAS, Ph.D.
EXECUTIVE SECRETARY
Psycho-Social Study Section
VOCATIONAL REHABILITATION ADMINISTRATION
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

UNITED CEREBRAL PALSY ASSOCIATIONS, INC.
15TH ANNUAL CONFERENCE
March 13, 1965 Los Angeles, California

"FUTURE DIRECTION FOR RESEARCH IN VOCATIONAL REHABILITATION"

I appreciate Dr. Miller's invitation to speak to the membership of this Association. It is a privilege and a pleasure to be here: a privilege to have the opportunity to discuss the future of research; a pleasure because, as many of you, I bring with me almost three decades of interest in and work with the disabled. In terms of our mutual background I feel that you and I are kindred; and, thus, meeting after many years, we have much to tell each other.

It is said that the military always know how to win the last war; winning the next war is the problem. So it is with research, over the past ten years the Vocational Rehabilitation Administration research program has solved many problems. However, the broadened scope of rehabilitation that we expect gives us pause because we foresee new complexities and new problems for solution. Nevertheless we look to the future optimistically because our research program has a stock of accumulated experience and resources which will enable us to conduct the next campaign successfully.

As perspective for the future, let us glance backward ten years to see how our research program developed. Dividing this period into three segments: 1955-58, 1959-62, 1963-65, we discern what appears to be an initial tooling-up and probing, a middle period of exploration and proliferation, followed by a period of synthesis and concurrent probing for the next advance. During the first period we had a variety of surveys of community needs, an inventorying of jobs suitable for special groups, mass data collection projects, problem finding projects, pilot programs, investigations of agency reorganization or coordination, and various attempts at systematization and classification. This period witnessed the establishment of special purpose workshops and ushered in a substantial effort to demonstrate and evaluate empirical training and rehabilitation services and practices of public and private agencies working with various disability groups. The research effort paid handsome dividends. By the end of 1958 the research program had available selected demonstrations (i.e., prototype projects) in mental illness, mental retardation, cerebral palsy, visual disorder, and industrial homework for the homebound. That same year sixty-nine selected demonstration projects were established throughout the country.

During the middle period, research emphasis on demonstrations continued; but a wider variety of services and procedures were being demonstrated. Support of workshop projects also continued. It is noteworthy, however, that these later workshops differed from earlier ones in several ways. More severely disabled groups were served, diagnostic and special therapeutic services were apt to be included, and workshop programs tended to focus on work hardening techniques and services facilitating a transition to outside employment. In the middle period, work therapy as an exceptionally valuable rehabilitation technique made its appearance. [9] Work-study programs were introduced [7]. The first occupationally oriented group therapy program was started. [16]. Although the first half-way house with VRA support was established in 1957, it is interesting to observe the proliferation of the half-way house idea; eight half-way houses were started during the four years of the middle period. Some half-way houses began introducing novel psychological and sociological techniques. For example, the half-way house of the Massachusetts Mental Health Research Corporation included resident university student volunteers in a half-way house for chronic mental patients, affording an exciting opportunity to study therapeutic effects of this interaction [13].

Researchers who energetically explore the field for effective service programs seek continuity and complementarity in services. This leads to cooperative involvement of inter-disciplinary teams in projects where totality of services is sought. The Minneapolis Public Schools project [5] is an example of a cooperative program between a Division of Special Education and the State Division of Vocational Rehabilitation, in which the partners assume responsibility for provision of continuous education and vocational services for retarded youngsters. The cooperative team makes recommendations within the school system for modification of educational programs, vocational planning and training. Observation, test and work sample performance are some of the evaluative techniques used. Results are interpreted to parents and parents are involved in planning for their children. Work stations in the school and in the community give job training on part-time jobs which are part of the evaluative experience. Employers evaluate the try-out job programs. Youngsters move from one job to another in accordance with their abilities. When assessment is completed, the youngster is placed in a permanent job and followed up until he is able to continue full time without further supervision from the team. A similar project in Maryland [11], designed for physically handicapped youth, is another excellent example of cooperative research effort. Regretfully, time does not permit me to go into details beyond saying that in this project the entire high school curriculum was constructed around a planned four-year work sequence. That research was able to elicit this degree of flexibility from a school system is remarkable, and a noteworthy example of inter-agency and inter-disciplinary cooperation.

A more recent example of cooperative research is a project of the New York City Central Labor Council, AFL-CIO [14], which is demonstrating a program featuring the liaison of labor, health, rehabilitation agencies and industry to insure prompt services to disabled workers. The project of the Educational Alliance in New York City is another example of a cooperative effort [19]. The Alliance coordinates services of school, industry, family and rehabilitation agency in a concerted effort to prevent a youngster from dropping out of school.'

Rehabilitation of the disabled is not and cannot be the responsibility of any one discipline. The doctor, the counselor, the teacher, the psychologist, the sociologist, the social worker, the anthropologist, the hospital aide, the physical therapist, the engineer, and in the next few years, the cybernetician may comprise the interdisciplinary team needed to insure successful outcome of rehabilitation. The complexities of some research require interdisciplinary teams of this size. Interdisciplinary research tends to expand research programs and these, in turn, move into large settings, research institutes and the like.

The movement of research from relatively small settings to highly organized large settings is particularly evident in medical research. Although the locales of medical research in earlier years of VRA support were institutions such as medical schools, universities, health agencies, clinics, etc., the initial research programs were relatively small. They were work tolerance, energy expenditure studies, evaluations of treatment methods, establishment of special workshops, etc. As the research program matured, the studies became more complex, larger in scope and size. Some examples -- selection of vocationally retrainable stroke patients; selection of Parkinson patients for surgery and post-operative rehabilitation; prediction of the response of the brain damaged to special training techniques [6];

study of mechanisms in nerve and muscle physiology [2]; development of tests on changes in neurological functioning and comparison to clinical measures and ADL ratings [15]; studying learning ability in elderly or brain-damaged patients [12]; studying the concomitants of phantom and somatic sensation in patients with neurological and structural impairments [20]; development of improved prostheses and evaluation of orthotic-prosthetic devices that utilize external power. A most recent example is a bio-medical engineering program on cybernetic systems for the disabled, a project that proposes to apply computer and data processing techniques for activating paralyzed muscles in human extremities [18]. In this brief listing of projects we see that the initial experimenter is joined by the psychologist, psychometrist, orthotist, prosthetist, a variety of technicians, a bio-engineer, a mechanical or electrical engineer, and a programmer. The research still may be in the original locale, medical school, hospital, or what have you. But, it has grown in size so that it is an institution within an institution.

A research program, like a well designed research project, is expected to have internal consistency which carries it forward in a predictable course. However, grants programs do not operate under conditions that permit maximum control over direction. As a result, a program finds itself with a wide range of projects whose data need some form of reorganization, reanalysis and transmission to the field. When this stage is reached, the program is at the synthesis level. We are supporting a project now to reanalyze a number of predictive studies in mental retardation [4]. More of this kind of re-ordering and synthesizing will follow. The program has accumulated extensive data about effective therapeutic practices. Information about them is disseminated to the field, but in many cases the practices are not being adopted. To find out where the organizational roadblocks are, we are supporting a research to study how organizational blocks can be reduced and how the scientific community can be stimulated to use applicable research findings [10].

The VRA research program tries to keep up with the times. It has supported investigation seemingly of every conceivable rehabilitation procedure and technique in a variety of settings. We have devised visible speech machines for the deaf, guiding devices for the blind; we are working on typewriters that convert typescript into braille; we have even considered supporting projects that would develop machines to convert typescript to audible speech.

We have sought out and experimented with new techniques and adapted these for use with varying populations in varying circumstances. Work therapy was taken out of the hospital and brought to the workshop. We have evaluated half-way houses, therapeutic environments, day care centers, foster homes and boarding houses. Milieu therapy programs have been given support. Programmed instruction has been used to teach retardates to interpret cues to social behavior, to teach braille to the blind, to teach retardates occupational information and to train them to work in banks. Moving pictures have been devised to improve socialization practices among the retarded and to allow hemophiliacs to witness their behavior in crisis situations. Projects underway are investigation perceptions of pain and why individuals react differentially to it. Conditioning experiments to improve self-concept and to evaluate self-esteem are in process. We are studying employer attitudes, self-attitudes and self-perceptions. The effects of individual therapy, group therapy and counseling of varying degrees of intensity have been given more than passing attention. Projects are studying the meaning of work, work values and incentives. Assessment instruments, inventories, predictive scales have been devised, are being validated and cross-validated. This is just a brief sample of what is going on. You might ask then "what is there still to do in the future?" Our answer is forthright and unequivocal. There is much to do.

The dramatic success of rehabilitation services, offered first to the disabled, and later to the mentally ill and the mentally retarded will, in all likelihood, set the pattern for rehabilitation services to other groups. The success we have had should deepen our resolution and commitment to other disability groups that we have not served well, or have neglected, such as public offenders, alcoholics, Indians, Alaskan Eskimos, Negroes, juvenile delinquents, narcotic addicts, school drop-outs, the impoverished and other groups. Surveys of disability among public offenders reveal that as high as 50% have identifiable mental, emotional, or physical disabilities. We feel it is against the public interest to release offenders from prison with handicaps that make satisfactory adjustment improbable. Solutions to specific problems of offenders will require different approaches and different techniques. We have a handful of research about prisoners; it is inevitable that over the years more research will be needed.

Poverty has many causes; it is not merely a matter of economics. Like a rank weed poverty thrives in a wasteland of malnutrition, prejudice and cultural deprivation. The victims of poverty, steeped in disenchantment, frustration and shattered illusion, detach themselves from the main stream of life, and live out their empty lives in pockets of desolation. Approaching and effectively dealing with the poor will require utmost ingenuity. Balzac used to say that poor people behave like little bugs. They hug the earth and lie so flat upon the ground, so that if you step on them you cannot crush them. If Balzac were just a run-of-the-mill psychologist, he might have said that inaction (sometimes called lack of motivation) is a common defense mechanism against threatening involvement. We are certain that research will be called on for solution of motivation problems and many other perplexing problems that will arise in the war against poverty.

As examples of the need for novel approaches and new understandings, we mention some problems for solution when dealing with subcultural groups. Lateral sanctions that govern conduct and decision making in Indian society require counseling modifications. A disintegration of the hypothesized matriarchal structure of Negro society, particularly in urban centers, has implication for rehabilitation theory and practice. We need to know more about life-styles of subgroups in indigenous settings and those attitudes, experiences and values that contribute to a change and to acceptance of a new style of life in a new environment. Prominent differences in attitudes are found among recently arrived Mexican migrants and Mexican-Americans who have been living in the country for some time. The newly arrived Mexican is more optimistic about opportunities and more accepting of assistance. On the other hand, the settled Mexican-American is less accepting and more resistive to plans made in his behalf. Apparently, we cannot lean too heavily on acculturation to help us when working with certain subgroups. We will need the assistance of sociologists and anthropologists more and more in the future we are entering.

The rehabilitation program will be called upon to assist in efforts to reduce the school drop-out problem and to overcome juvenile delinquency. Recent evidence suggests that mass programs offering short-term counseling, hasty literacy training, skill development, training and placement, are not as effective as expected [1], [3]. Full-fledged rehabilitation services provided on an individual basis, in lieu of the mass approach, may have to be the rehabilitative methods of choice for many in the hard core delinquent and drop-out groups.

The President's interest in Heart, Cancer, and Stroke will give our medical research program a significant thrust forward. Much of this research will be medical, but we expect that substantial contributions to the program will come from psychology, vocational rehabilitation, sociology and other disciplines.

We anticipate increasing research into problems of alcoholism and drug addiction. The incidence of epilepsy in the general population warrants more research than we now have. As the years go by, heavier emphasis will be given to research in this area.

Technological changes and automation in the next 15 years will alter occupational conditions markedly. Jobs now unknown will come into being and will call for revision of training techniques, and will require radically different adaptations. What are functional handicaps now may not be handicaps in the future. Adjustments required for adaption to man-machine relationships may be easier to effect. It is conceivable that built-in fail-safe devices will compensate for human failings.

In the years ahead, the Vocational Rehabilitation Program will be increasingly concerned with prevention as well as alleviation of human problems. The Educational Alliance project we mentioned is a forerunner of future research aimed at prevention. It is not improbable that rehabilitation will shift toward prevention in other disability areas. Rehabilitation may very well become habilitation. In conditions like cerebral palsy, habilitation in early childhood is likely to be more effective than services given at a later age.

Turning to the subject of research in cerebral palsy, to the best of my knowledge, there is relatively a modest amount of research going on. I have found two researches on pre-natal factors: one at the Children's Hospital Medical Center in Boston; another at the Children's Hospital of Buffalo. Two more researches: one based at Duke University is investigating effects of extra pyramidal lesions; the second, at Johns Hopkins, is concerned with etiology of cerebral palsy and related neurological abnormalities in children. A collaborative study at the Children's Hospital of Philadelphia, a research on speech at Wichita State University, and a physical-occupational study at the University of North Carolina, plus two projects at the Vocational Rehabilitation Administration, complete the list of current researches. The need for more research is apparent.

Urgency for some rehabilitation breakthrough is suggested by data about rehabilitation of the cerebral palsied collected by Odoroff in 1944-48 [17], Garrett [8] in 1951, and comparison of their findings with recent statistical data reported by the Vocational Rehabilitation Administration. The Odoroff, Garrett and VRA Summary data essentially agree with respect to types of training the cerebral palsied received over the twenty-year period. There are some exceptions however. In recent years larger proportions than formerly were reported as attending colleges, Universities, and receiving tutorial training. Jobs entered after training remained about the same over the twenty-year period. In terms of type of training received and job entered, we find little change. However, if we look at a tabulation of rehabilitations over the years, we see that the ratio of cerebral palsied rehabilitants compared to the total number of rehabilitants has been decreasing continuously.

Table I. Persons disabled from cerebral palsy, rehabilitated

Year	Total Rehabilitations	CP Rehabilitations	% CP of Total
1945	41,925	575	1.4
1948	53,131	841	1.6
1951	66,193	881	1.3
1956	65,640	783	1.2
1960	88,275	1,059	1.2
1961	92,501	744	0.8

Year	Total Rehabilitations	CP Rehabilitations	% CP of Total
1962	102,377	860	0.8
1963	110,136	855	0.8
1964	119,708	824	0.7

Other data are needed for adequate interpretation of proportions in this table. Regretfully, these are not available, but inspection of the CP Rehabilitation column indicates that the absolute number of CP rehabilitations over the past 17 years, with one exception, has not changed. If this table represents the actual state of affairs, then we may conclude that the rehabilitation of cerebral palsied has reached a plateau. It would seem that some upward thrust is necessary.

I would do a disservice to my office if I were to leave you with the impression that the VRA research program is a model of perfection. Our program ten years ago, five years ago, even today is a mere toddler compared to research programs in some other agencies. However, we grew quickly and vigorously. In the process, like many youngsters, we made some mistakes. For example, in order to launch a program quickly, we used some of our funds as "seed money" to encourage what we thought were promising researchers and to encourage research in needed areas. Regretfully, we've had some crop failures. We are critical of other projects we have supported; particularly the "global" type of demonstration which demonstrates the effectiveness of a variety of services. Projects of this type presented before and after measures or provided some type of control. When completed, the outcome appeared acceptable, but the variables and the degree to which they contributed to the process culminating in successful outcome were not apparent. This situation is correcting itself: projects coming now have better designs, clearer procedures, more clearly defined criteria and better indications of specific variables. None the less, we have been set back some.

Reviewing the overall program, we see some gaps. Research in problems of motivation has been initiated recently, but we need more research here. Research is needed in ways to involve parents in rehabilitation, and ways to get effective parental cooperation. We have only fragmentary information as to how disabled people make adjustments and how they cope with problems at various life stages. We think that some long-range follow-up studies getting at the dynamics of the coping would be of great value to counselors and rehabilitation personnel. The rehabilitation of women has been uneven; a concentration of research on the vocational-career, social and adjustment problems of disabled women is needed. As parents approach death, they become increasingly and deeply concerned about their disabled children's prospects to maintain themselves. The problem is very acute among parents of severely disabled children. Research will need to explore ways for the severely disabled to maintain themselves when parental protection and guidance is gone. More basic research in perceptual process, learning acquisition, speech, etc., is needed with severely disabled groups such as the cerebral palsied and brain injured to enable rehabilitation to provide effective treatment. Severely disabled individuals need extensive evaluation, concentration and continuity of services. Comprehensive evaluation centers generally serve these goals best. In view of the need, it would not be unreasonable to hope for such a center for the cerebral palsied.

Public concern for the welfare of man during the next fifteen years and in the foreseeable future beyond that will increase. It cannot be otherwise; this is the course of our historical development. Programs will move ahead. Our research program again will surge forward, probing exploring, testing. The years ahead will be challenging. Let us hope that they will also be productive.

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*Signifies research demonstration project supported by the Vocational Rehabilitation Administration.

DISCUSSION

The areas that Dr. Nicholas referred to in terms of the fifteen year review, he actually sized up very quickly: The initial period of tooling up and probing, which he did not elaborate on in his paper he had presented, was a very, very, essential period, and covered about three or four years. Remember all this started basically back around 1954, 1955 with the passage of Public Law #565. Of course, ten years ago, we were very concerned with this new law and the "tooling up" required to get properly launched.

Then the next three or four years, we had a middle period of exploration and proliferation, as Dr. Nicholas referred to it. This called for a "retooling", as it were, even though we did a good job. The Vocational Rehabilitation Administration, the State vocational agencies, and the voluntary agencies needed this time to rethink and revise its goals. This middle period, of course, continued to stress demonstration and continuation projects, but they went into more depth. They were looking into workshops of different dimensions; there was a therapeutic value to these workshops. There were work hardening and various transitional periods needed.

The third period, was, of course, the synthesis, as he very quickly mentioned, I do not know whether you caught it because I know his surgical procedure was moving on pretty fast by this time, but the period of synthesis and concurrent movement, which really is the period we face today.

It is at this point that I would like to just address my brief remarks to something that came very near the wind-up of Dr. Nicholas' presentation, and that has to do basically with the research directly related to cerebral palsy.

Notice that Dr. Nicholas in his homework went to the resources to see what he could find out at least in Washington and, unfortunately, as we talked briefly last night, he knows that he did not secure exactly what he went after. We know that there is very limited research going on in the field of cerebral palsy. We know that there is much more going on than Dr. Nicholas was able to put his finger on unfortunately. The reasons for this, of course, are many, including identification, classification of many studies, and many doctors do not care to use the label of cerebral palsy. We can agree with Dr. Nicholas that not nearly enough research is being conducted. A research foundation has to do with basic research,it has to do with medical research, it has to do with all types of very necessary laboratory basic research, which I think, and I am sure Dr. Nicholas would be in agreement, is a must. But I think he is also concerned with another area in which the Vocational Rehabilitation Administration, by the very nature of its responsibility, should be concerned with and that is what happens after we save a life? What happens after this child grows up? What happens during the school years?, the formative years? What happens to this young adult? Can we place him in a job? Can we actually rehabilitate him to competitive employment or to a workshop, to a sheltered, or to a semi-sheltered situation? I think these are the concerns that are faced by many agencies and certainly by the federal and state vocational rehabilitation level, at the Office of Education level, and at the National Institutes level. It is the same concern at the voluntary agency level.

The one reference I would like to point to specifically is this concern of the number of rehabilitations during the seventeen or eighteen year period that Dr. Nicholas was referring to. This is a shame, when you look at it, and I am going to do some arithmetic. If we consider any one of the incidence rates of cerebral palsy in this country and consider the half million, even though we have heard figures around, 550, 600 thousand cerebral palsied, and we know that half of these will meet the definition of adulthood. We know that from various studies and research that we should be concerned with a population of teenagers and adolescents, and I am talking about 14 years of age and up, right now, because I think we have omitted and neglected this population in terms of vocational planning.

I would like to make mention here of the wonderful experience I had in Los Angeles of seeing the vocational programs, the high school and the workshop Mr. Burton referred to in this panel, and then yesterday I had the pleasure of visiting the school on Washington Boulevard, and I think the fact that the principal of that school is here today, is so very interesting. There is a real movement here in Los Angeles, and in California, in relation to the realistic education of these children. We are all concerned with the vocational aspects--the Division of Vocational Rehabilitation in every state, as well as everyone working in the field of cerebral palsy. If what Dr. Nicholas has told us is indicative of what we are facing--in eighteen years the rehabs have more than doubled, from 49,000 to 109,000, but the percentage of cerebral palsied has decreased. The number of cerebral palsied rehabilitated has leveled off or plateaued, but remember with the population increase the number of cerebral palsied increases, and the number of rehabs have not kept pace.

This has given us a challenge and we are here today for this particular conference to look at this problem introspectively and I am personally,and have been for some time, very concerned about this. I can be rather proud, of course, that New York State ranks at the top in the number of cerebral palsied rehabilitated --174 for the year 1964 or 2.1 percent, but this is not nearly good enough. I must make reference to a study we have been carrying on with the help and assistance of the Vocational Rehabilitation Administration, which we refer to as the Brownsville Program. Actually it is independent living in a sense, and of the 94 that we have studied in the last three years, 33 of these have never been known to the Division of Vocational Rehabilitation. Why? Because of the very things you have been hearing today. They are too handicapped, too disabled, too physically involved, too mentally involved, so it has been stated. This particular demonstration and research is not yet completed, but it is very interesting to know that 15 percent, and hopefully 20 percent of this population will move into a competitive work situation. This is what Mr. Burton was also pointing out, that those who are rather hopeless, as it were, are still showing gains and some are moving on. Another 15 percent or 20 percent are moving up into some form of homemaking, or rehabilitation to independent living. In other words, it is not hopeless. Our challenge and our responsibility for people in the field must look at this total problem, knowing that we have the Vocational Rehabilitation Administration, knowing that we have respected and interested people like the people from Florida, the people from California, that you have been hearing today, are interested in this problem. We do not know each other quite as well as we should, but it is a joint effort of trying to explore this together in some way. One of the recommendations made is that UCPA should possibly assign someone that would help and direct his attention to the adult needs and to that of research, getting some leadership in this direction to try to help the various affiliates, to try to know how to write a protocol, and to work out some of the problems. This is just one of the kinds of things that I happen to hear at this conference and I think this merits repeating, as I believe it is greatly needed.

There are a few challenges that face me and that face those who are directly interested in working with this problem day by day: Are we thinking and planning sufficiently well? That is, not just for today, or for one year, but possibly fifteen years from now, because this is our challenge of this particular day. Do we know what our problem really is? Have we identified the problem and put this in some proper perspective, and with proper priorities? Are we working cooperatively with the community agencies, that is, with Health, Education, and Welfare, at all levels? It is surprising the amount of interest, the amount of enthusiasm, with all of these agencies, voluntary and public if we would go after it.

Are we working with the legislators, at the local, state, and federal level for new laws? I am wondering if we should be pushing for new laws, when I think here in 1964, following ten years after some excellent legislation, that may not have been implemented sufficiently well. We should point to ourselves introspectively.

This is the message Dr. Nicholas was bringing to us; we have to be looking very closely at this total problem, not only from the standpoint of new laws, and we certainly must need and have these, but the fuller implementation of those laws we have. Finally, are we trying to do everything possible? We are all thrilled with the fact that new ideas are coming possibly from the voluntary effort, in arts and crafts, creative design and in electronics. All these things with a cooperative effort in this direction, will make the program that we are all here for, a much better program. Those who are the leaders in Washington, Miss Switzer, Dr. Usdane, Dr. Garrett and Dr. Nicholas, and every person in the VRA, are very much interested in our program and in our progress, and in our problems. In the last two years they were able to sponsor two professional workshops that have helped all of us from the standpoint of examining where we are going and giving us some insight into the future. These interests and concerns are manifested in many ways.

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ADDRESS BY

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at

UNITED CEREBRAL PALSY ASSOCIATIONS'
15th ANNUAL CONFERENCE

March 13, 1965 Los Angeles, California

"IMPLICATIONS OF DEVELOPING STATE DIVISION OF VOCATIONAL REHABILITATION SERVICES FOR CEREBRAL PALSIED CLIENTS"

The theme of this Conference is the next fifteen years in cerebral palsy. In the last fifteen years, our division in California has not done very much for the cerebral palsied. We have not really changed our approach, changed our services, provided the services that the cerebral palsied need.

As you probably know, most of the state rehabilitation agencies are beginning to move in a really scientific, professional, and involved way in fields such as the mentally retarded and the mentally ill. We are starting to consider the field of alcoholism. We are starting to consider vocational rehabilitation in conjunction with correctional agencies. But we have not given enough thought to the rehabilitation problems and potentials of the cerebral palsied.

The proportion of cerebral palsy that we serve--in this state, at least--is not very much greater than it was fifteen years ago. And I feel that largely it is because both the counselor on the working level and the administration recognize that the cerebral palsied applicant presents the most profound and most varied type of placement problems of any other type of disability.

Bearing in mind, this bleak background, I still believe we can do a really good job in rehabilitating the cerebral palsied--in effect revolutionize the type of program we have had--if we strive for the following three goals in the next five or ten or fifteen years:

1.) State agencies can provide much more intensive services in order to identify and attack the problems of vocational rehabilitation of the cerebral palsied early and deeply.

2.) They can provide more extensive services to make use of existing community facilities, and improve or add to them where needed.

3.) They can provide specialized services to identify and solve unique problems.

We can obtain these broad goals in the following specific ways:

1.) We must assist and spearhead the development of sheltered workshop facilities for the cerebral palsied in every large or moderately-sized community. Our parent organization, the Federal Vocational Rehabilitation Administration, has been provided by the Congress with legislation and with money to help us do this. It just does not make sense that Community A has adequate sheltered workshops for the disabled and specifically for the cerebral palsied, and Community B has not.

2.) We must develop cooperative programs with schools, sheltered workshops, and other rehabilitation facilities. All such facilities should think of the ultimate goal: a well-adjusted adult. We can help in planning and counseling the overall programs for these facilities as well as the specific cases that come to them.

3.) We must become early involved in planning for, counseling, and rehabilitating the cerebral palsied. Too often now we get a case referred to us--say at the age of 20 or 25 or 30--when it is too late to provide the services that should have been provided at the age of 10 or 15. Special vocational adaptations could have been made at that early age. Special training could have been provided. If there were psychological problems apparent, they could early have been attacked in an appropriate way.

4.) Modify the goals and eligibility factors so that more severe cases can be served. Our state rehabilitation agencies are made up of human beings, with a few exceptions. They are only human and they have pressures to rehabilitate a certain number of cases a year. And so they take the cases that they feel comfortable with and feel that they can handle. If our laws and regulations were changed so that the goal of complete self-support in competitive employment is modified, we would be able to help some of those more severe cerebral palsied persons whom we now do not accept. And, who knows, if we started with a limited goal we might end up reaching the ultimate goal of self-sufficiency.

5.) Train and use specialists, particularly in the field of assistive devices and techniques, both as counselors and as consultants. Any disability involving a neuro-muscular incoordination simply cries to have made available a specialist who can identify special assistive devices and techniques that can make a particular job--a particular part of a job--performable.

6.) Where indicated, more fully and early utilize the services, other than counseling, such as social work and psychiatry. One of the problems in working with the severely disabled--and certainly with the severely disabled cerebral palsied--is that his family may have overprotected him. At an early stage, some social worker or psychologist could well have helped the family, and the patient himself, understand the problems and help overcome them--problems induced by overprotectiveness.

7.) Provide services to other family members, if needed, in solving the rehabilitation problems of the cerebral palsied member. Sometimes parents need counseling, not only in how to relate to their child, but how to help the child plan his future. That's right down the alley of a state rehabilitation agency. We should be allowed to offer counseling services to the parents, not only apprise them of the other available rehabilitative resources available in the community but specifically to help them help the child select a suitable vocational objective.

8.) We must develop a usable, practical, and scientific statistical system. In the state of California, we do not have a category for the cerebral palsied. We have it for the neuro-muscular and functional limitations and so on, but we do not have a category for the cerebral palsied. Although, this does not sound as if it were terribly important, it is if it will help us identify the problems. Once we know the problems we can deal better with them.

Now, I had intended to end up with the presentation of a heart-warming specific case here. Because of limited time, I can only outline it. It is the case of a severely disabled cerebral palsied young man, now about 20, I believe, with no speech, except for guttural sounds which only his mother can understand--with very little dexterity, in a wheelchair. But he is blessed with intelligence: an IQ estimated at 150, even higher in the area of mathematics. He operates an electric typewriter by wearing a plastic helmet and a special little device sticking out of it, about a foot long--and thus he communicates. Our counselor corresponded with eleven different school teachers--and got eleven replies, to show you the kind of person he is. In short, it was obvious that the boy was a near-genius, but it was also obvious that it was going to be very, very difficult to devise a special type of training for him.

A plan has been devised. Hours and hours and hours of time have been put in by our counselor on it, consulting with the university, with other schools, with community organizations. And a very specific objective has been selected: extracting material of a mathematical nature from Russian research publications.

It is quite obvious that this boy needs a sympathetic, imaginative, resourceful, rehabilitation counselor, as far through the program as possible. This might be my ninth point: that time and money are necessary for these severe cases. And, what if this boy didn't have intelligence? I do not mean genius intelligence. What if he didn't even have normal intelligence? That is the question that makes my first eight points particularly meaningful.

REMARKS

Since there was a communication breakdown, I was unable to obtain a copy of the report just presented by Dr. Wright. I, therefore, am taking the liberty of referring only briefly to her important considerations of psycho-social issues, [in her prior publications], as these pertain to physical disability. Further, some of my comments are guided by Dr. Brewster Miller's suggestions in some recent correspondence that it might be quite worthwhile if I were to translate or clarify to parents and lay affiliate members, some of the implications of the various theoretical papers that had been presented. To some extent, the terms utilized in these papers carrying diagnostic or prognostic implications which actually set up emotional barriers, not only between the parent and the professional worker, but, more importantly, between the parent and the child.

For example, let us consider the label "brain injury". Dr. Wright describes the devaluation of the individual when this term is applied. The individual, she believes, feels incomplete, insignificant, and unimportant, and the self-image or estimate is that of an inadequate individual.

Her remarks refer to cerebral palsied children. My remarks, however, are directed primarily toward their parents. Their intense frustration and anxiety felt during the early period of lengthy and costly examinations, their doubts, their puzzled and guilt feelings while the child goes through pediatric, neurological and psychological examinations, are bound to create emotional tensions or obstacles to practical understanding of their child, particularly if the end result of these examinations are followed by the diagnosis of "your child is brain injured". The irreversible dogmatic and pessimistic implications of this term for ultimate adjustment (educational, social, economic) are bound to bring barriers between child and parent, and parent and professional worker.

The papers we heard today and during the previous sessions kept pounding at the issue of brain damage and its dire suspected consequences in the field of child development, educational capacity, motor and perceptual control, and general neurological stability. The careful attempts to delineate the relationships between brain damage [suspected and not necessarily verified by degree or locus], and a variety of functions [operationally and minutely defined with limited consideration or knowledge of their significance to adjustment] were presented without due considerations of the highly problematical nature of the relationship between the research attempted and its ultimate meaning for life adjustment. This reporter feels that while research in the area of instrumentation as it relates to measurement of functional capacity and development is necessary, he does not feel that exploratory methods, nor hypotheses that are poorly substantiated, should in their present embryonic state be foisted upon a lay public that is more likely to be puzzled and harrassed than enlightened. In essence, I am trying to say that the stage of the art as it pertains to the relationship between function [adjustment] and brain injury today, is not so readily established that it offers guidance for training, teaching and handling of the brain injured child or that one has to accept or be subjected to the negative implications of our research findings to date.

Let us turn to a term which is generally accepted as an important equivalent of general adjustment, i.e., intelligence. Despite the fact that there has been very limited support for the relationship to between physical brain damage and important functional attributes associated with brain damage, such as memory, abstraction, attention, concentration, etc., and certainly not with the broader definition of intelligence, i.e., the degree of adaptability to the environment, parents are still led to believe, and many professionals make the inference, that there is a high degree of relationship between the term "brain damage" and "intelligence" or "adaptation."

To some extent there is a tendency to minimize the importance of personality factors and environmental experiences and pressures that probably are as important as cerebral tissue damage, since these variables can account for and create traits which provide for or determine intellectual efficiency, or adaptive potential, e.g., persistence, motivation, delay of impulse toleration for frustration and dependency needs.

Let me illustrate my point by telling you about an experience I had several years in Boston when I addressed a group of cerebral-palsied adults. After describing to them the generally accepted conceptions of the importance of certain test measures of aptitudes, interests, and characteristics of the cerebral palsied as a basis for selecting occupational choice, I naturally mentioned the fact that we generally recommend that this group avoid working in areas which require either fine neuromuscular facility, or ability to handle abstract or symbolic functions such as mathematics. I was later asked by this group, to make some guesses about their present occupations. In sum, this group consisted of members who were employed as jewelers, machinists, and accountants!

With regard to the issues of personality of the brain injured individual and the emotional well-being of the parent, the following ought to be considered: from the field of general habilitation, a term usually applied to people who have never made a complete social or economic adjustment, an approach which emphasizes and utilizes the assets rather than the disabilities and defects or liabilities of the cerebral palsied, is liable to be more conducive to the well-being of the brain injured person, than an approach which emphasizes evaluation and determination of liabilities. An asset-oriented approach allows the brain injured individual to assume a positive self-image which can permit the integration of abilities with the motivation which stems from a social inter-reaction that is positive and ego enhancing. The parent who feeds back to the child her own positive attitude about his potential, helps to create in the child the type of personality that has the motivation to contend with life's stresses. Simultaneously, this kind of approach leads to search on the part of the parent for resources in the community which deal not with labels and disabilities but a search for programs geared to training or conditioning of the cerebral palsied individual in helping him adapt to his environment. These preoccupations will be less likely to create tension and anxiety with resulting barriers between the parent and the child, and/or the professional worker whom the parents meet while they search for help for their child.

It is also quite important that psychologists and psychiatrists view the anxieties and tensions of these parents who must bring up their children, as being rooted in realistic issues, rather than phantasied conflicts which are generated [to be considered] when one deals with a neurotic population. More often, what is required is assurance and support while the parents deal with their daily problems rather than prolonged depth analysis or intensive psycho-therapy.

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COMMENT ON MR. BURTON'S SUMMARY

In commenting on Mr. Burton's remarks, I would like to emphasize most of the things that he has said. I think that we need, certainly, all of the kinds of facilities that he has talked about. The deplorable fact to me is that we could say the same thing about many other things that we say about cerebral palsy. That is vocational rehabilitation agencies, by and large over the country, have not always done the kinds of jobs that we would be proud of in other severely disabled groups as well as in cerebral palsy. So that those who would criticize state vocational rehabilitation agencies for their lack of emphasis, or interest, in the cerebral palsied might also spread the band of their criticism in many states to include the mentally retarded and the mentally ill and many other disability groups. Vocational rehabilitation has been born and raised as an orthopedic rehabilitation program. And as we've gotten into the problems of the psychiatric disorders and the communication disorders, this has been an evolution that has taken some difficulty to come to pass. And I think this perhaps is not adequately understood by a good many people in the area of several of the severe disability groups. But certainly there is much movement going on now that we can begin to be proud of.

Another deplorable thing is the fact that we take pot shots at each other. And it is extremely discouraging to me, and I would like to be candid enough to talk about this as an individual working in cerebral palsy, as well as an individual working in vocational rehabilitation, that we don't know each other as well as we should, and that we're not joining hands together to try to get the things that we need, especially for young adult and adolescent cerebral palsied individuals. And that we do not find cerebral palsied people in the same groups fighting for the kinds of things that would benefit, not only the cerebral palsied young adults, but the mentally retarded young adults, the other severely disabled young adults who need the same kinds of counseling services in the schools, the same kinds of workshop services, the same kinds of physical medicine services and the same kinds of combination provisions for overcoming the communication disorders that we need for so many other disability groups.

I have been startled to find out how many here do not know the vocational rehabilitation people in your state--do not know the director, and do not know the vocational rehabilitation counterpart in your home town. Now, humorously, I would be sure--knowing how nice you are--that at least fifty per cent of the blame for this must be on the backs of those terrible rehabilitation people. But, they ought to know you, and you ought to know them. And you ought to find some occasion to invite them to come into your meetings and you ought to be sure that you understand what their problems are. Some of the things that they're struggling with may be things that you can help to correct, and that you have the kind of community influence--by joining hands with other volunteer groups--that can afford the legislative assistance that will help them to get the kinds of legislation they need to correct some of the statistical problems, some of the legal limitations that we have on eligibility and feasibility rules, and some of the other things that Don mentioned.

You have a real contribution to play in terms of joining hands to give the kind of outside support that people within a legal state-federal agency can not lobby to do, or can not assume the entire burden to correct. We have a gold mine in terms of financial opportunity for services across the country now in the state-federal rehabilitation program that is not as effective as it should be because very, very few states are appropriating sufficient money to match all of the federal funds available for vocational rehabilitation in their states. You can help correct this by being a part of the groups in your state who will work for adequate state appropriations. This will spill off certainly in terms of better services and more services for the cerebral palsied.

Thank you. ....CRAIG MILLS

SHELTERED AND TRAINING WORKSHOPS

I am not even going to attempt to summarize what Mr. Fleischer has tried to summarize from the paper which I didn't see either before it was brought to the podium. Fortunately, in the letter that I received from Dr. Miller, he asked that I attempt to bring into the picture the role of the sheltered and training workshop for the cerebral palsied. This is a much easier task than to attempt to go on with Dr. Acker's paper.

I am fearful and I say this from having worked with the mentally retarded, as well as the cerebral palsied, that I think we are attempting to devise very sophisticated tools which will point up to the feasibility of non-employability of the cerebral palsied. I really believe this. Unfortunately, too many of our sheltered workshops -- our training workshops -- have entrance requirements such that a person with a multiple handicap is initially excluded, if not, then the period of training and the period of evaluation is far too short to really determine the employability and get the person to the point of placement in industry. I would like to see someone try to set up a long term evaluation program for the cerebral palsied, for the moderately, severely handicapped cerebral palsied individuals, that over a period of time, we might better equip these individuals to then go on to vocational rehabilitation for their evaluation and for their particular type of training. I think what has happened too many times is that after a cerebral palsied individual has completed an educational program or an academic program, they are terminated and immediately are sent to vocational rehabilitation and under the system that we have today, at least speaking from our experiences in Colorado, generally they are determined "not eligible for training under vocational rehabilitation." This is the first time that you try to open the door. They go home and wait a couple of years, shopping around, trying to find something to do, go back and try to re-open the door. Maybe, they get a sympathetic counseler who will re-evaluate-- who will take another look at the record-- and again find that the person has not had the necessary experiences to equip them so that the vocational counselor would feel that he is employable. And once the record is closed, it is very, very, difficult to re-open. This, I think, is the role of the sheltered workshop and the training workshop. The role, I see, is continuum, actually from the sheltered terminal workshop--the shop that is set up for those individuals who will probably never become employable. There are many in this room that several years ago in Cleveland heard a paper presented about the program in Denver, and, at the time, we had no thoughts and no ideas that any of our people,and there are 30 in the workshop, would ever go on to any other type of workshop. They had been declared not feasible for vocational training. They were not eligible for any other program. And yet, without emphasis really on training for placement elsewhere, there have been four individuals moved from our shop on into a training work situation and two of them are just finishing the training program and will be up for placement in industry. This is without emphasis in this area, so I think that we can do a great deal by focusing on the strengths of the individual of training around these strengths and of building as good a picture as we possibly can before we go to other workshops. And I think this is a responsibility of local affiliates with all the help they can get. I think also that for those of you who attended some of the tours and happen to be lucky enough to go to Whitney High School and the sheltered and the training workshops that we visited, saw something that you came away with a real tremendous feeling. It was definitely enthusiasm on the part of the staff. I didn't meet a negative person during the entire tour--and I think this is an important point for us. I think we need to be positive in our approach. We were talking earlier about knowing our vocational counselors, knowing our vocational rehabilitation people, and them knowing us and our organization, I think this is true and I think in every encounter we need to be positive because we've got a product to sell, that is very difficult to sell.

Don Burton

The END
6/6/68